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ACCESS AND UTILIZATION OF DIGITAL FINANCIAL SERVICES AND DIGITAL INFORMATION SERVICES AMONG SMALLHOLDER FARMERS, PASTORALISTS AND AGRO-PASTORALISTS IN KENYA

FINAL REPORT

MARCH 2023



This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.



1) BACKGROUND & STUDY OBJECTIVES

2) COUNTRY OVERVIEW

3) SMALLHOLDER FOCUS

4) AGRO-PASTORALIST AND
PASTORALIST FOCUS



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Background of the Study

Nearly one and a half billion poor people live on less than US\$1.25 a day. One billion of them live in rural areas where agriculture is their main source of livelihood (IFAD, 2013). Smallholder farmers, who typically farm two hectares or less, provide over 80% of the food consumed in a large part of the developing world, contributing significantly to poverty reduction and food security (Peck, et al, 2011). Pastoralism is the dominant livestock production system in African arid and semi-arid lands (ASALs or drylands). In Sub-Saharan Africa alone, livestock is the primary source of income for 25 million pastoralists and 250 million agro – pastoralists (Swift, J.J 1988). Pastoralism contributes to the livelihoods of millions of people in Africa and play a significant role in the continent's economy and food security

In Kenya, agriculture dominates the Kenyan economy, 1) accounts for 40% of the overall workforce (70% of the rural workforce); 25 per cent of the annual GDP; and about 65% of the export earnings. The country's major agricultural exports are tea, coffee, cut flowers, fruits, vegetables and livestock products (meat and dairy) (KNBS).

Information, communication and knowledge are key in agriculture, with farmers continuously seeking information, communicating with each other and sharing knowledge on new agricultural technologies. Effective knowledge and information management in the agricultural sector requires proper channels/infrastructure and a farmer based participatory approach integrating traditional or tacit knowledge of farmers with the modern forms of knowledge, and further employing mechanisms that enhance the utilization of knowledge disseminated to smallholder farmers (D. Odongo, 2013)

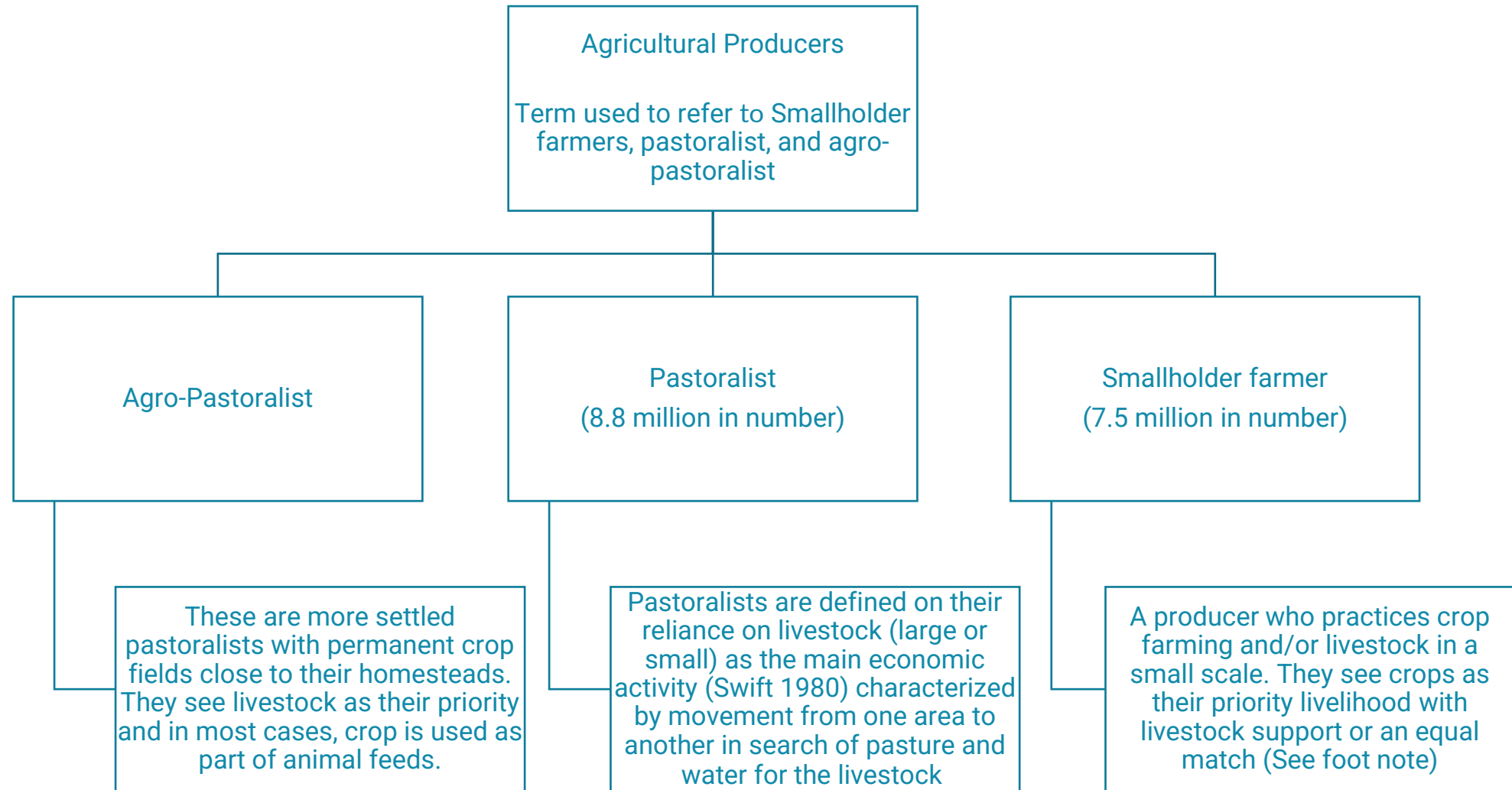
With this information, Dalberg Research in collaboration with two of Mercy Corps programs i.e., 1) AgriFin Accelerate, and 2) Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises (SPARC) that support innovation for farmers, agro-pastoralists and pastoralists have come together with the aim of understanding the use and access of Digital Information Services (DIS) and Digital Financial Services (DFS) among the smallholder farmer and Pastoralist communities.

It is common for banks in developing countries to provide financial services to only about 20 percent of the population, which means that most people; including pastoralists, have to rely on semi-formal and informal financial options (ICPALD, 2016). AgriFin Accelerate envisions a future where every smallholder farmer prospers in a digital world, with a primary target group of un-banked smallholder farmers living on less than USD 2 per day. Their main objective is to link smallholder farmers to products and services that increase their productivity and income by 50%, with 40% target population of women and youth.

SPARC's aims at creating innovative solutions to strengthen resilience in the drylands, the objective is to develop, broker and manage knowledge, to improve the ability of the development communities to assist pastoralists, agro-pastoralists and farmers living in the context of climate change, protracted crises and unending conflicts.



Within the Agricultural sector, producers are key stakeholders; Nearly 80% of Kenya's farmers are smallholder¹ while pastoralists contribute 28%² of the meat in the country



Source: FinAccess Survey 2021; Accounting for pastoralists in Kenya, 2019;

¹From low to high: Increasing productivity and purchasing power in Kenya (ifad.org)

²The value of pastoralism in Kenya: Application of total economic value approach, 2019

Note: Size of land or income generated to define a small holder farmer do not agree across different reports, policy and framework



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Study Methodology & Objectives

This study employed purely secondary research by triangulating publications, journals, white papers and other credible literatures from credible agriculture stakeholders and research organizations.

The findings were supported by analysis of proprietary datasets from different Public, Private and Non-governmental institutions.

The objective to this study was to:

1) Conduct in-depth profiling of smallholder farmers, agropastoralist and pastoralists, through studying the value chains they participate in and how they access and use Digital Financial Services (DFS) and/or Digital Information services (DIS)

2) Interrogate existing information on access and utilization of DFS and/or DIS, exploring opportunities to enhance information sharing and adoption by producers



Source:

Note: The literature considered to generate insights in this study was seven years old as opposed to five years required due to effect of COVID 19 which hampered data collection efforts.

Definition of terms

Digital Financial Services (DFS) refers to the use of digital technologies such as mobile phones, the internet, and other electronic devices to deliver financial services. DFS includes services such as mobile banking, mobile money transfers, online payments, and other electronic financial transactions. These services are aimed at increasing financial inclusion by providing affordable, convenient, and secure financial services to individuals who have limited access to traditional banking services¹

Digital Financial Services (DFS)



Digital Information Services (DIS) refers to the delivery of information and knowledge to individuals or organizations through digital channels, such as mobile phones and the internet. DIS can include weather updates, market prices, agricultural advice, and other relevant content that can improve decision-making processes and livelihoods, particularly for those living in remote or underserved areas²

Digital Information Services (DIS)



Source:

¹Digital Financial Services (DFS) | Alliance for Financial Inclusion (afi-global.org);

²How digital technologies can help Africa's smallholder farmers | E-Agriculture (fao.org)

Our analysis of the producers' access and use of information focuses on the following key dimensions

1 Country overview

High-level landscape of smallholder farmers and pastoralists in agriculture within Kenya.
What governing frameworks support agriculture including targets and signed declarations

2 Producer profile

How are producers split across different demographics?

a. Where are they located?

b. What are the major value chains (VCs)?

c. What are the producer level characteristics e.g., gender, income sources, financing mechanisms etc. ?

3 Access to DFS and DIS

Where, why and how do producers acquire finance and information on different aspects like inputs, weather, markets among others?

What opportunities exist to enhance provision of financial services and information to producers?

4 Challenges/ opportunities in DFS & DIS provision

What are the key challenges that hinder growth among producers in their operations?

Which opportunities can be harnessed to increase information sharing and enhance digital access to information among producers?

5 Shock/ coping mechanisms

What are the common unexpected occurrences faced by producers in their operations and how have they adapted or managed their impact?

High-level summary finding of Smallholder farmer section 1/2

Smallholder farmers in Kenya cultivate in small plots of land, less than 2ha with less focus to specific value chains in both crops and livestock. Labour is mainly provided by family households. Generally, the practice is left to non-youths; half of the farmers have at least primary education. There is an outstanding income disparity between men and women, whereby men earn twice more income than women.

The availability of digital financial services in Kenya has improved access to financial services to the population, however, smallholder farmers are still left out as they prefer informal sources. Social networks are the common sources of finance for SHFs, mostly among women. More men utilize formal financial platforms such as banks to save and borrow compared to women. Low uptake of formal financial services is linked to, among others, lack of collateral and high interest rates. SHFs also prefer cash transactions since they can offset their pending bills and, to avoid transaction charges when using digital platforms.

Despite high cellphone penetration and government initiatives to increase financial literacy and digital skills, many smallholder farmers still face significant barriers to accessing DFS and DIS. 1) Infrastructure: Low reliability of electricity and internet connectivity in rural areas limit the uptake of DFS and DIS by smallholder farmers. 2) Financial literacy and digital skills: Many smallholder farmers lack the financial literacy and digital skills necessary to fully benefit from DFS and DIS, which hampers their ability to participate in the agricultural value chain and grow their businesses. 3) Access to formal financial services: Many smallholder farmers do not have formal bank accounts and are therefore unable to access traditional financial services, which makes it difficult for them to access DFS. 4) Cost barriers: cellphones and data plans can be expensive for many smallholder farmers, making DFS and DIS cost-prohibitive.



High-level summary finding of Smallholder farmer section 2/2

Despite these challenges, there are opportunities to increase smallholder farmer access to DFS and DIS in Kenya. 1) Increased cellphone penetration: Kenya has one of the highest rates of cellphone penetration in Africa, which has greatly increased access to financial and information services in rural areas. 2) Government initiatives: The Kenyan government has launched several initiatives aimed at increasing financial literacy and digital skills among SHFs, which could help to increase their uptake of DFS and DIS. 3) Alternative identification systems: The development of alternative identification systems, such as biometrics and mobile-based systems, has made it easier for SHFs to access financial services, including DFS.

DFS and DIS have the potential to play a crucial role in improving the livelihoods of smallholder farmers by helping them manage risks, access credit and insurance, and make informed decisions about their farming activities.

Smallholder farmers in Kenya do not produce at full potential since they face a myriad of challenges; Climate change that leads to variability in rainfall, high temperatures and drought. They also face challenges of land and population pressures, declining soil fertility and land degradation, pests and diseases, high cost of inputs and lack of accurate and timely information on markets. Poor agronomic practices like over-cropping, deforestation leaves the rich topsoil exposed to agents of erosion, among others lead to deterioration of soil fertility

Unexpected threats slow down productivity and affect the livelihoods of the SHFs. SHFs commonly face weather-related threats and infestations of pests and diseases, which are the most common shocks they experience. However, most SHFs do not take any action to cope with weather-related threats, while they use their savings to cope with pest and disease infestations. A very small number of SHFs use crop/livestock insurance to cushion against these threats, and the majority of those who do not use insurance cite low awareness, lack of trust, and high premiums as reasons for not using it.





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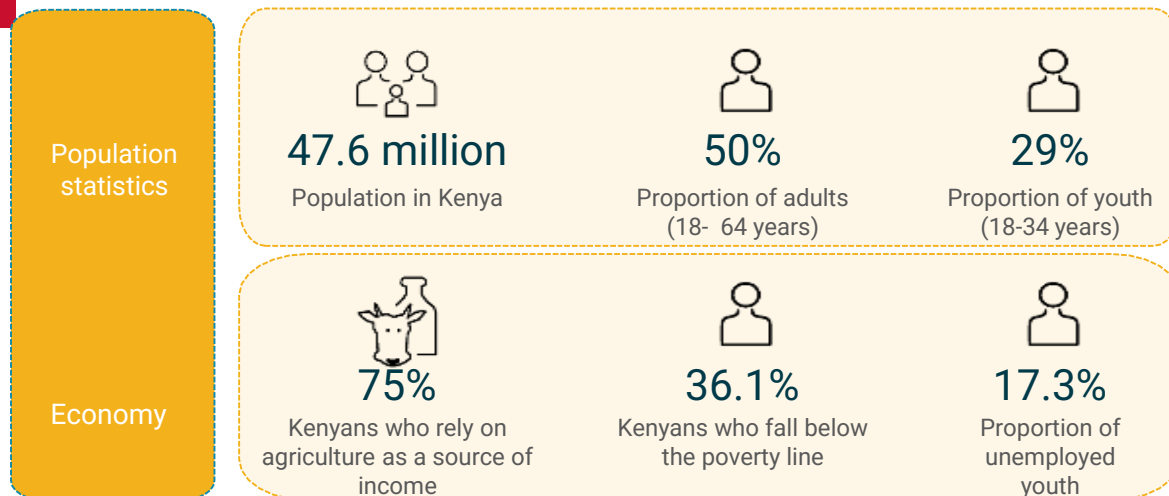
COUNTRY OVERVIEW

MARCH 2023



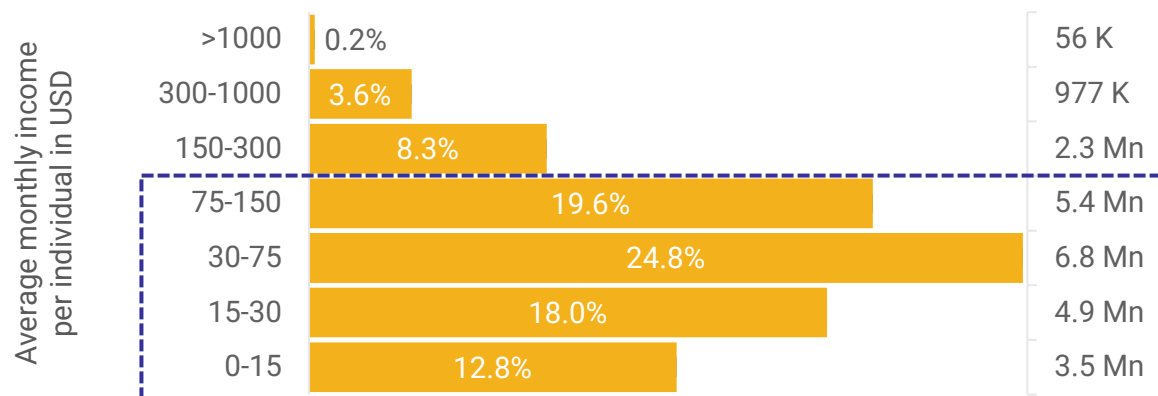
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Despite economic growth Kenya remains a highly unequal society



Source: World Bank, 2018; KNBS, 2019

Income distribution per segment



- Human Development Index: Kenya ranks highest in the region. Its entrepreneurship and human capital give it potential for growth, job creation and poverty reduction.
- Despite a decline of the country's absolute poverty rate, Kenya remains a highly unequal society by income, by gender and by geographical location.
- Rapid population growth is a major challenge, complicated by high unemployment rates especially among the youth. More than 70% of Kenya's population are below the age of 30 and 39% are under the age of 14.
- The driving forces behind economic growth in the past have been an export-oriented agriculture, tourism, light manufacturing for domestic markets, and Nairobi's emergence as a regional center for clerical and financial services.

GoK has set out long-term priorities in its 2019 ASTGS strategy, focusing on new farms, SHF productivity, food security, and agro-processing

Transformation themes

ASTGS Targets

Smallholder Farmers	Increase small scale incomes	<ul style="list-style-type: none"> • Raise average annual small-scale farmer incomes by ~40% from KES 465/day to 625/day (~35% increase) • Directly benefit ~3.3 million Kenyan farming households • Provide input subsidies to ~1.4 million farmers
	Increase agriculture production and value add	<ul style="list-style-type: none"> • Unlock 50 new large-scale (>2,500 acre) farms and 6 agro-processing hubs • Expand agricultural GDP from KES 2.9 trillion to KES ~3.9 trillion (~6% CAGR) • Grow contribution of agro-processing to GDP by KES ~130 billion over 5 years (~50% from KES 261 billion today)
	Boost food resilience	<ul style="list-style-type: none"> • Reduce the number of food-insecure Kenyans in the ASAL regions from 2.7 million on average to zero, while reducing the cost of food and improving nutrition • Protect households from environmental and economic shocks
	Enablers	<ul style="list-style-type: none"> • Curricula for ~200 national and county government leaders • Skill-building for flagship implementers (including agri-business skills for ~1,000 change agent SMEs) • Management/technical training for ~3,000 government youth-led and digital-enabled extension agents



A smallholder farmer is a producer who rears livestock, raises fish or cultivates crops on a limited scale

- Despite their small operational scale, smallholder farmers produce food for a substantial proportion of the world's population. Overall, they have a high crop diversity that favors good nutrition and market diversification

Key highlights on smallholder farmers



There are more than 7.5M SHFs, mainly found in the rural areas



98% own the houses they live in



On average a family has 7 members which is also considered a cheap source of labor



They own below 2 ha of land with an average of 0.47 ha



SHFs practice rain-fed agriculture (12% of land having between 800-2700mm annual rainfall)

Production and Market

SHFs produce relatively small food volumes on small plots of land

SHFs produce primarily for home consumption (70-80%)

SHFs contribute 63% of the food consumed in the country

Access to resources

SHFs generally have fewer resources and technology, i.e., they till their land by hand

Their livelihoods depend on natural resource base and informal networks to access markets

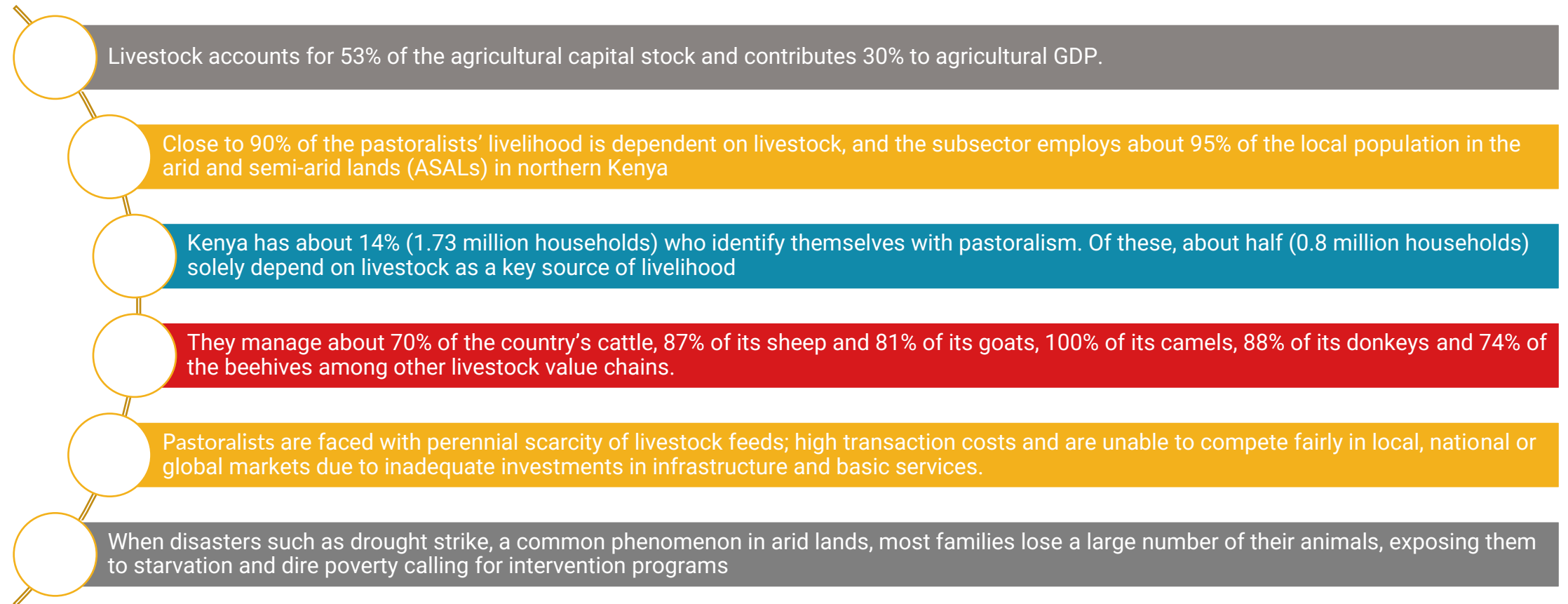
The SHFs are vulnerable to climate and market price fluctuations



Source: FAO, The economic lives of smallholder farmers; An analysis based on the household data from nine countries, 2015; One Acre Fund: <https://oneacrefund.org/articles/smallholder-farming-centre-our-food-systems>; World Bank report, Kenya Agricultural Sector Risk Assessment, 2015; [From low to high: Increasing productivity and purchasing power in Kenya \(ifad.org\)](#)

Pastoralism in Kenya is regarded as an economic activity and a cultural identity

Pastoralism is defined as “an economic activity and a cultural identity that takes advantage of the characteristic instability of range - land environments through strategic mobility, where key resources such as pastures, nutrients and water for livestock becomes available in short-lived and largely unpredictable concentrations”



Kenya has policy strategies that guide activities of the pastoralists communities

Kenya ASAL Policy- Sessional Paper No. 8 of 2012

- ❖ The policy focuses on challenges facing the pastoral communities in rangelands and come up with measures to manage drought & strengthen livelihoods. All these elements are hinged on an institutional framework for their delivery.

Vision 2030 Development Strategy for Northern Kenya and other Arid Lands

- ❖ The strategy envisions a holistic and sustainable management of land and natural resources across the Rangelands to allow for maintenance of their traditional movement arrangements. The proposed interventions include: integration of traditional systems of natural resource management in all other policies affecting the natural resource base; recognition in law of the role of traditional institutions in dispute resolution

The National Livestock Policy (Revised 2019)

- ❖ The policy notes the fragility of the range environment and the need to develop strategies that will protect the range resources. It recommends that county governments institutionalize the involvement of the communities in planning, development, utilization and monitoring of range resources. It also provides for the two levels of governments, in partnership with other 10 stakeholders, to continue supporting pastoralism and agro-pastoralism and develop strategies to ensure sustainable utilization of the range resources

Agricultural Sector Transformation and Growth Strategy (ASTGS) 2018-2028

- ❖ The ASTGS prioritizes three anchors as follows: increase small-scale farmer, pastoralist and fisherfolk incomes; increase agricultural output and value add; and Increase household food resilience.

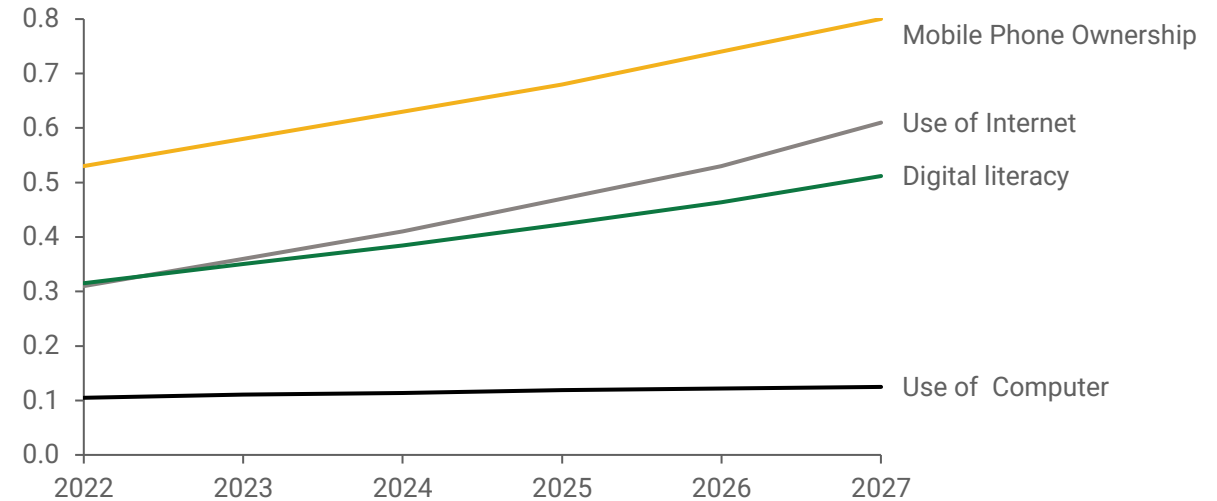
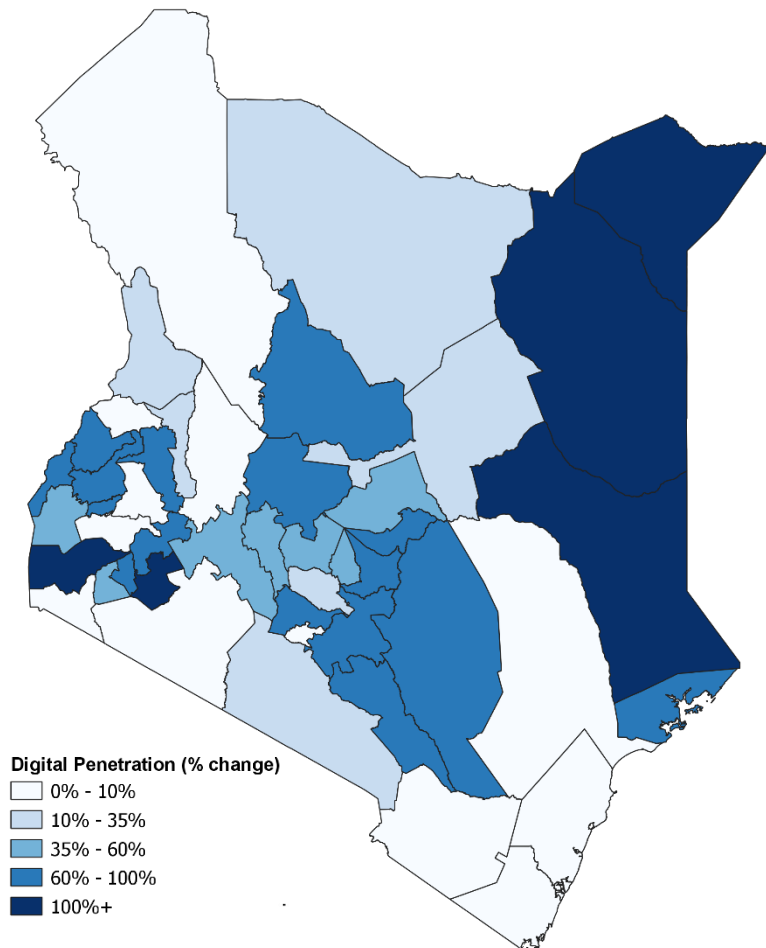
IGAD Strategy for Sustainable and Resilient Livestock Development in View of Climate Change (2022-2037)

- ❖ The IGAD strategy aims to promote sustainable and resilient livestock production in the face of climate change in the Horn of Africa. The strategy seeks to increase the productivity and competitiveness of the livestock sector, while addressing the challenges posed by climate change. It focuses on supporting smallholder farmers who rely on livestock production for their livelihoods

Parts of Western Kenya and North-eastern may be of interest due to forecasted growth in digital penetration and available value chains within the areas

Forecasted Digital Penetration change

% change 2022 -2027



- Digital Penetration in Kenya is forecasted to rise steadily between 2022 and 2027. Major contributors of this rise are the increase in cellphone ownership and increase in internet usage. Computer usage is projected to rise but by a negligible degree
- The highest digital penetration is forecasted to be experienced in North-eastern Kenya, in the counties of Mandera, Wajir and Garissa as well as some parts of Western Kenya.
- More developed counties and cities have a lesser increase in digital penetration e.g. Nairobi as compared to more remote areas of Kenya that are adopting new technological ways of doing things. This adaptation is seen to have positive effects in digital penetration.

Social Networks – Farmer Persona mapping in Kenya



1. Lead farmer (large scale)

- May specialize in specific Value chains
- Quick to adapt new technology
- Purchase inputs individually
- Has access to inputs but can also process feeds at the farm
- Popular and influential
- Sometimes rely on inputs supplied on credit with contract with processors
- No affiliation to any farmer cooperative or SACCOs
- Work as individuals and not in farming groups or cooperatives
- Use AI most of the time

2. Group farmer (medium scale)

- Belong to farming groups or cooperatives and may rear specific breeds of cattle.
- Most of the farmers use certified inputs
- Buy different types of inputs in groups to reduce transport costs
- May get credit from financial institution in groups
- The average age is about 44 years
- They are in a structured value chain where they have negotiation upper hand on the prices of commodities produced
- Those in the ASAL areas have communal land for livestock farming.

3. Traditional farmer (small scale)

- Older in age and need support most of the time
- May be involved in both group farming and contract farming
- Most of the farmers have 2-5 cows but for pastoralist in the ASAL will have numerous heads with low productivity.
- Most of the farmer have less than 2 acres for crop farming
- Most of the breeds are Zebu
- Prefer to buy inputs in cash although from the local agrovets or retailers
- May receive inputs sent by children from town
- Like to learn from others' example and not registered on any dairy value chain

NB: Persona profiles are not statistically representative of respondents interviewed. These are characteristics that represent unique categories of farmers, some of which may overlap. The aim of persona mapping is to help develop policies (or services) that collectively addresses the needs of all of these personas. Personas are typically developed based on what they: think & feel; see & hear; say & do.



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Medium and small scale producers have different knowledge and attitudes in Kenyan farmers

Large Scale Farmer Characters

- Knowledgeable on inputs, provides free advice on farming to neighbors
- Village liaison for agriculture-based NGOs, county governments and environmentally conscious
- Works within the structured value chains but some are passive users of the value chain services
- Attends trainings on dairy /crop farming is capable of maxing own feeds
- Consistently keeps the records on the dairy farming.
- Capable of transacting on digital

Needs and Preferences

- Reliable information on availability of particular inputs for farming.
- Worries on the continuous increase in the prices of inputs in correlation to the prices of farm produce.

Medium Scale Farmer characters

- Buy inputs from different agro-dealers due to different input needs
- Select group membership based on familiarity and common interests in farming
- Verify each others loan application requirements to ensure integrity
- The quality of products is not a priority in the production
- They are price takers even though they are in groups
- The digitally illiterate trust their peers to transact on their behalf

Needs and Preferences

- Expects national and county government to provide subsidized animal feeds
- Would expect the feeds to be delivered on time at the farm gate from the cooperatives
- Values the social relationship with the communities
- They trust certain brands of dairy feeds
- Would like to avoid high individual transport costs for inputs

Small Scale Farmer Characters

- Uses both certified inputs and uncertified when they can't afford to buy
- Listens to opinion leaders in the village & are supported by NGOs and county governments
- Do not like to transact using cellphone without support
- Low literacy levels hence little or no record keeping, depend on recall
- Most of the produce is for consumption at home ,they do not give attention to quality of produce
- The digitally illiterate, trust their peers/agents/family to transact on their behalf
- Majority are more than 50 years and above

Needs and Preferences

- Yearns for in-person demonstration for new concepts I practices to increase productivity
- Would avoid mobile money at all costs to avoid extra charges when purchasing inputs .
- They are interested in individual loans but non of the institutions give



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FOCUS ON SMALLHOLDER FARMERS

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1) BACKGROUND & STUDY OBJECTIVES

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3) SMALLHOLDER FOCUS

3.1. Smallholder farmer profiles

3.2. Access to Finance

3.3. Access to Information Services

3.4. Factors hindering the usage and access of DIS/DFS by SHF

3.5. Opportunities

3.6. Constraints

3.7. Shocks and Coping Mechanisms

3.8. Gap Analysis

3.9. Organizations/programs

4) AGRO-PASTORALIST AND PASTORALIST FOCUS



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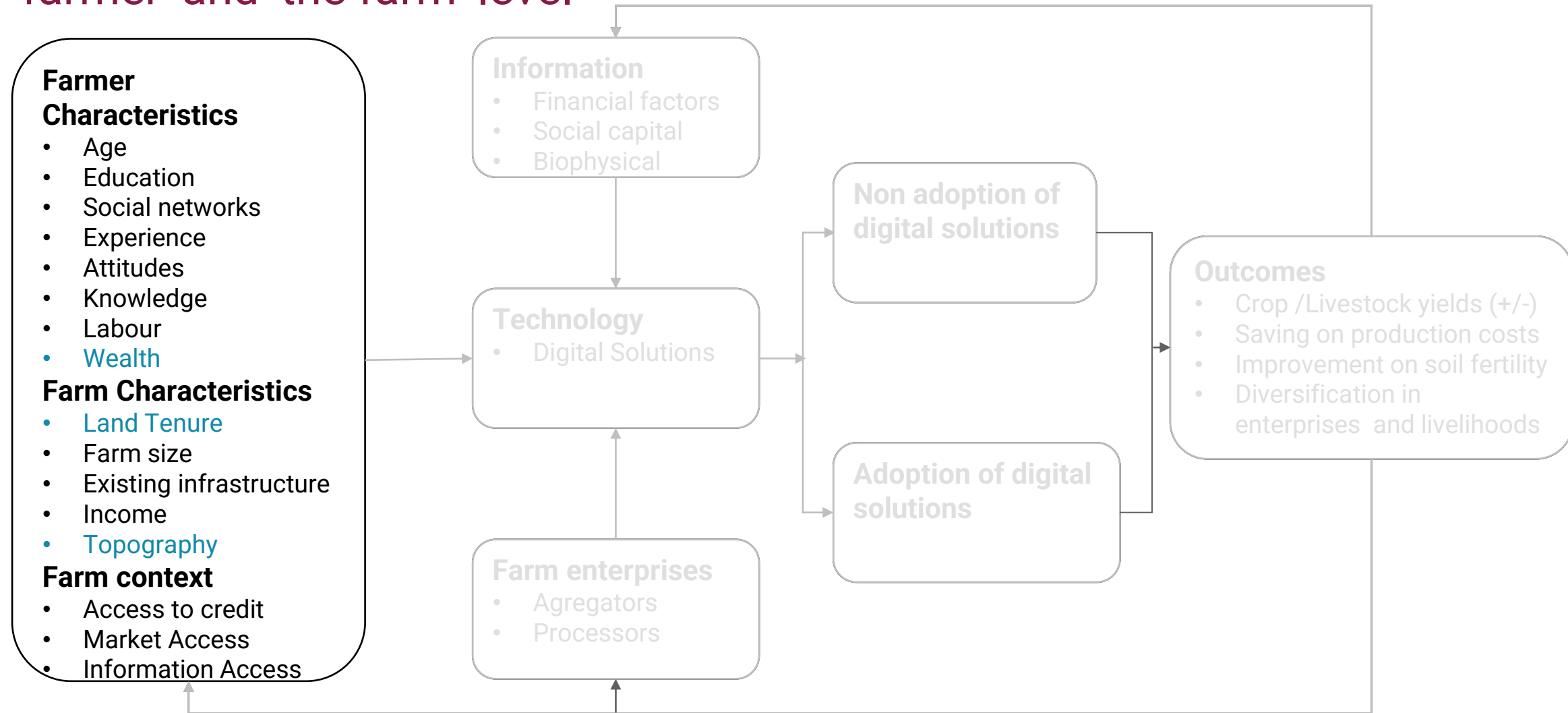
SMALLHOLDER FARMER PROFILES



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Our farmer profiling analysis targets to describe smallholder farming at 'farmer' and 'the farm' level



Framework. Source: Adapted from Lugandu (2013).



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Highlighted metrics were not reported in this study

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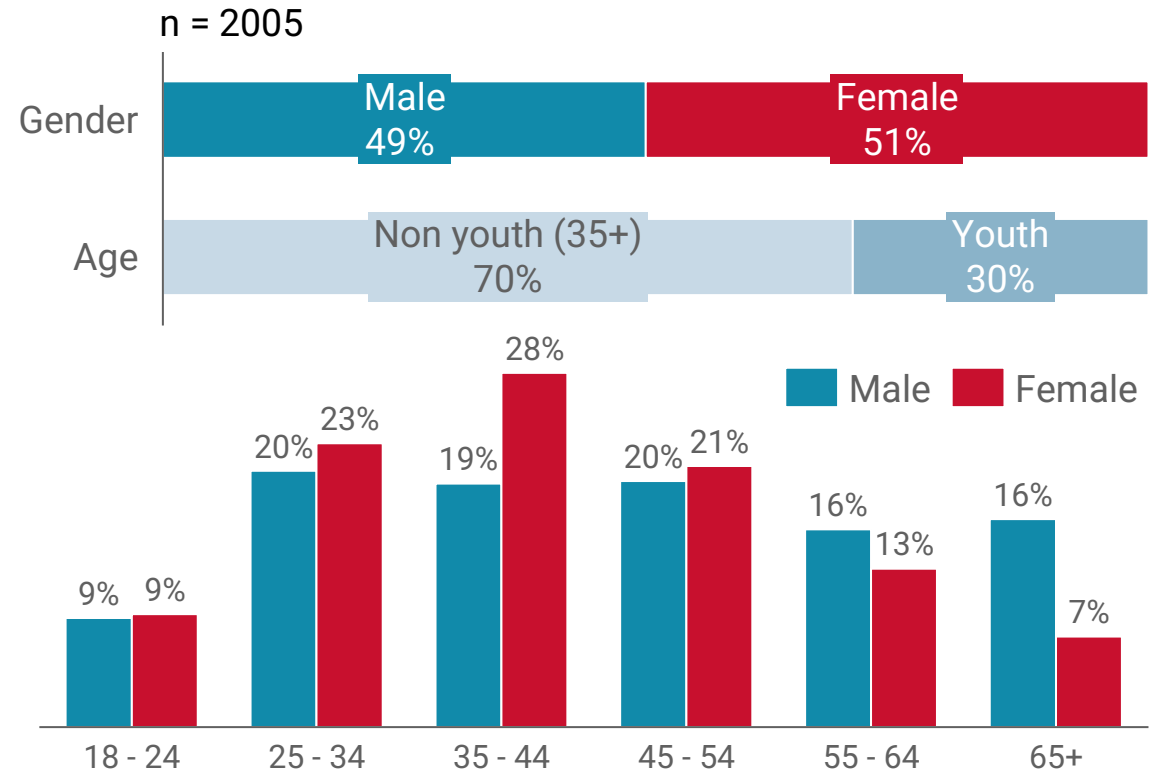
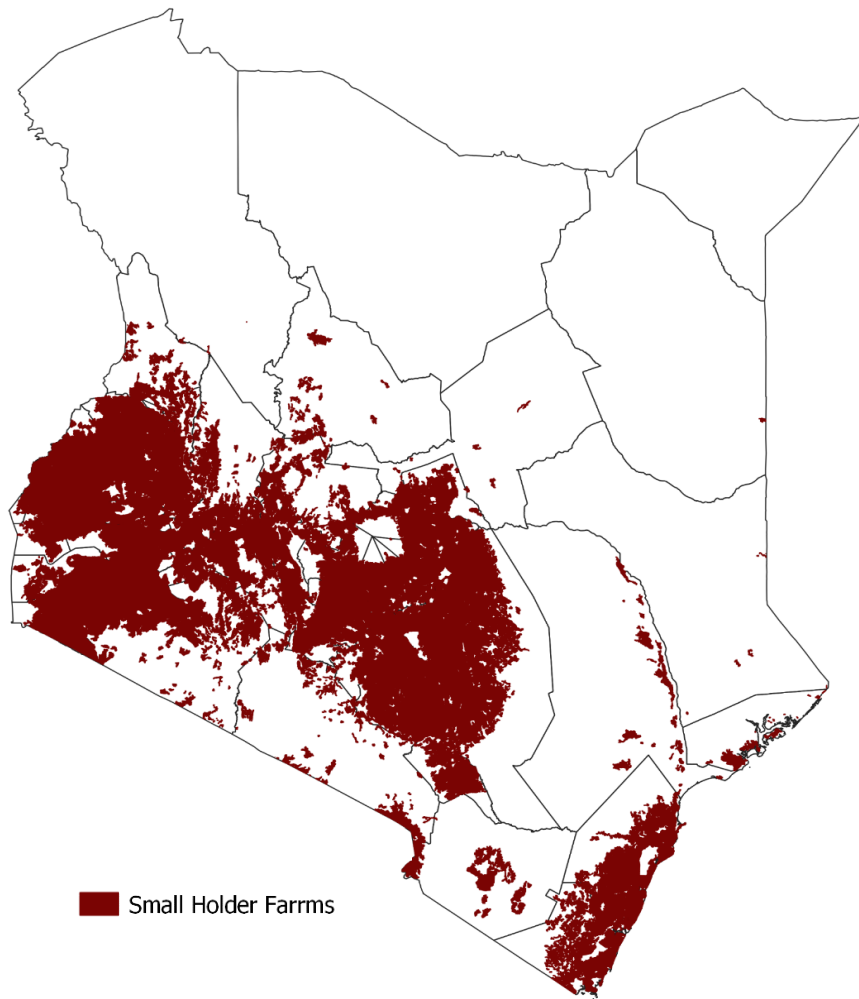
FARMER CHARACTERISTICS



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SHFs dominate the Central and Western regions of Kenya; Youths are under-represented among the SHFs



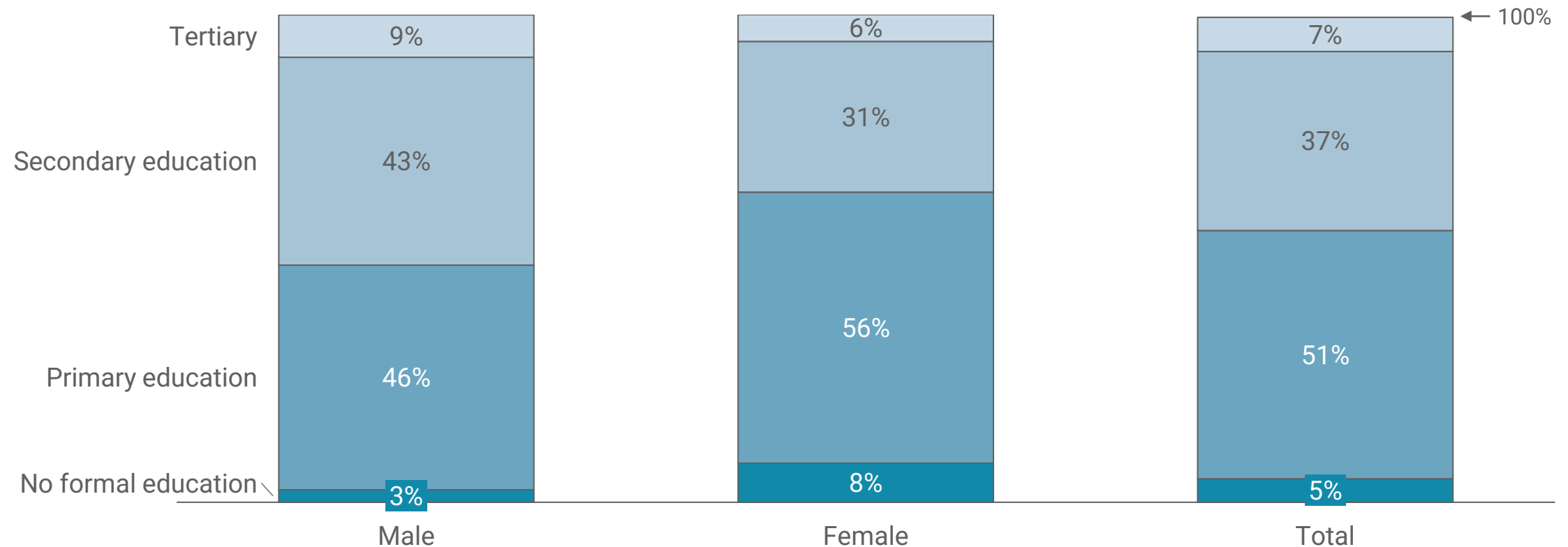
- The average smallholder farmer is 42 years old. About 2 in 3 smallholder farmers are aged 35 years and above. The youth are not quite involved in smallholder farming
- A survey by Geo-poll where two thirds of SHFs were youth (below 35 years) indicated that 41% cultivated crops, 11% reared livestock while 48% did both.
- 75% of smallholder farmers are monogamously married

More than half of SHFs have a primary education; more males have a secondary or tertiary education compared to female SHFs

- More than 80% of the smallholder farmers have basic education; about half have primary level of education
- More females do not have a formal education compared to males.

Education level of SHFs (n = 2005)

% distribution of SHFs by level of education



SPARC



MERCY
CORPS

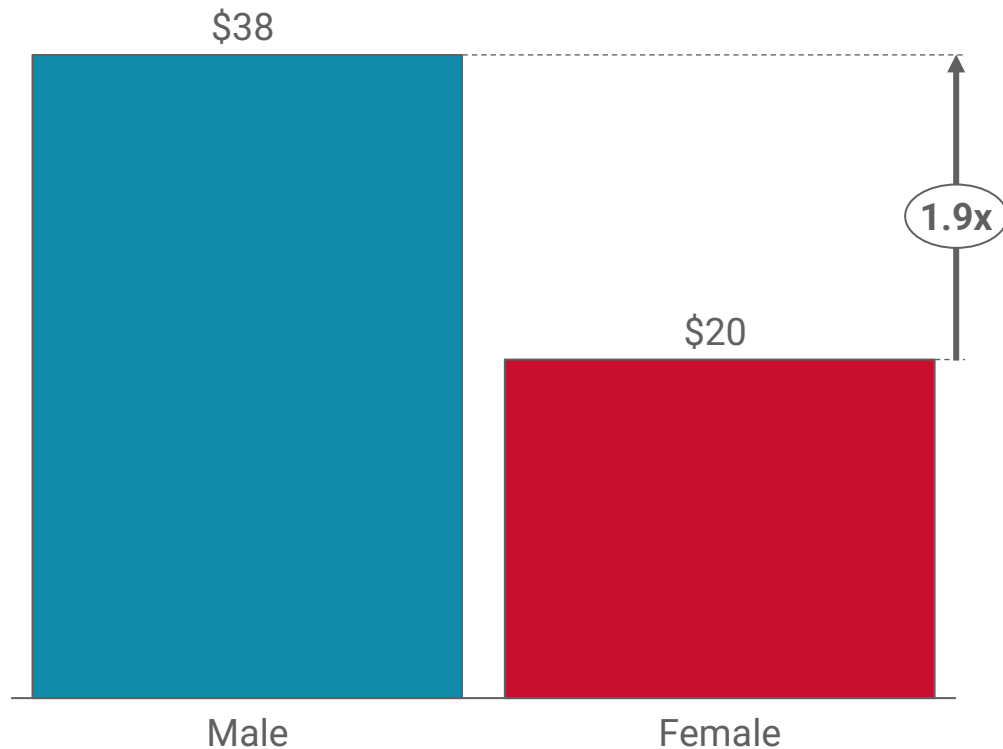
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On average male SHFs earn ~2x the average income of a female SHF; advancement in education is a likely indicator of higher income

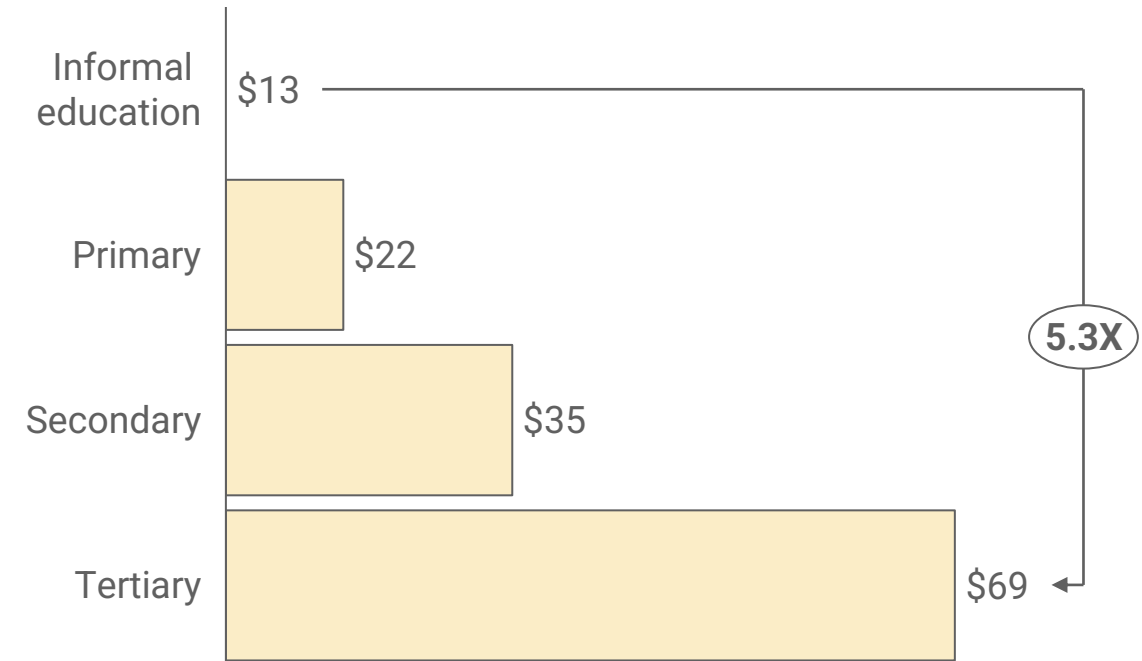
Monthly income of SHFs by gender

Median monthly income for SHFs (in US dollars)



Monthly income of SHFs by education level

Median monthly income for SHFs (in US dollars)



According to a study on gender productivity differentials among smallholder farmers, it is explained that Since access to productive resources such as land, modern inputs, technology, or financial services is crucial in determining the level of agricultural productivity, then their limited access by women is likely to explain the productivity and income gap.

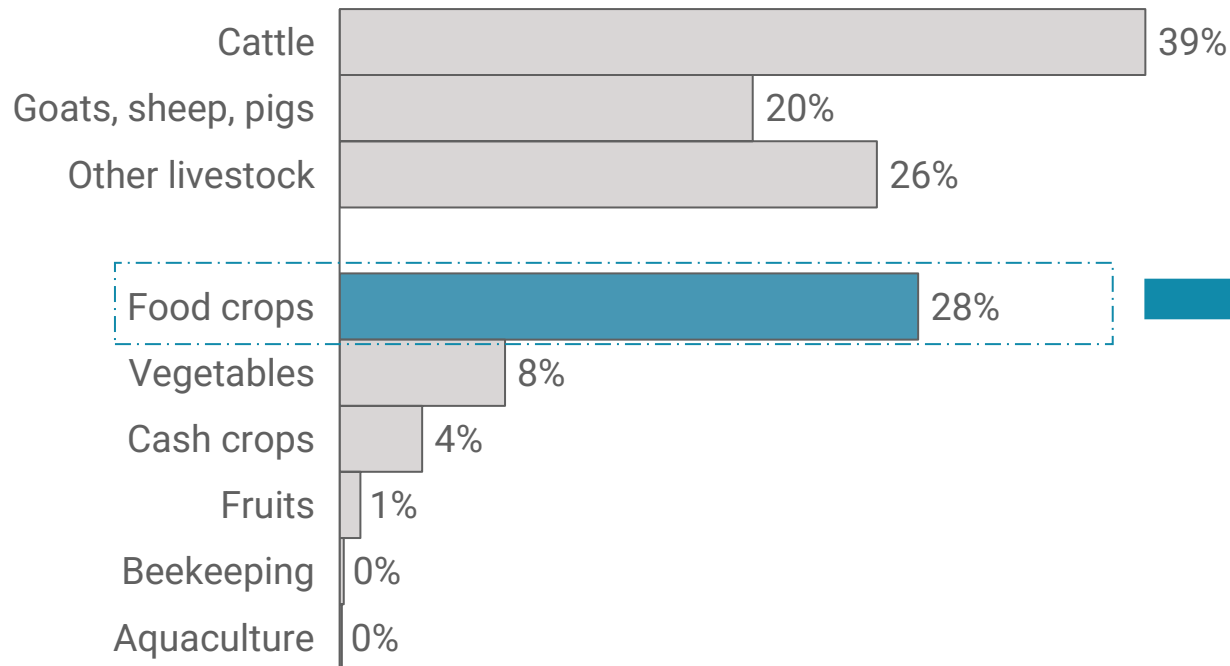


SHFs are involved in mixed farming with cattle rearing and growing food crops being the most practiced

- Apiculture and aquaculture are the least common value chains among SHFs; this could be attributed to high initial and maintenance costs incurred in setting up the beehives and fish cages/ponds
- Traditional value chains like Sorghum, Millet, Cassava are underdeveloped across multiple SHFs
- SHFs who grow Tea, Coffee and Sugar cane as their primary crops do not intercrop

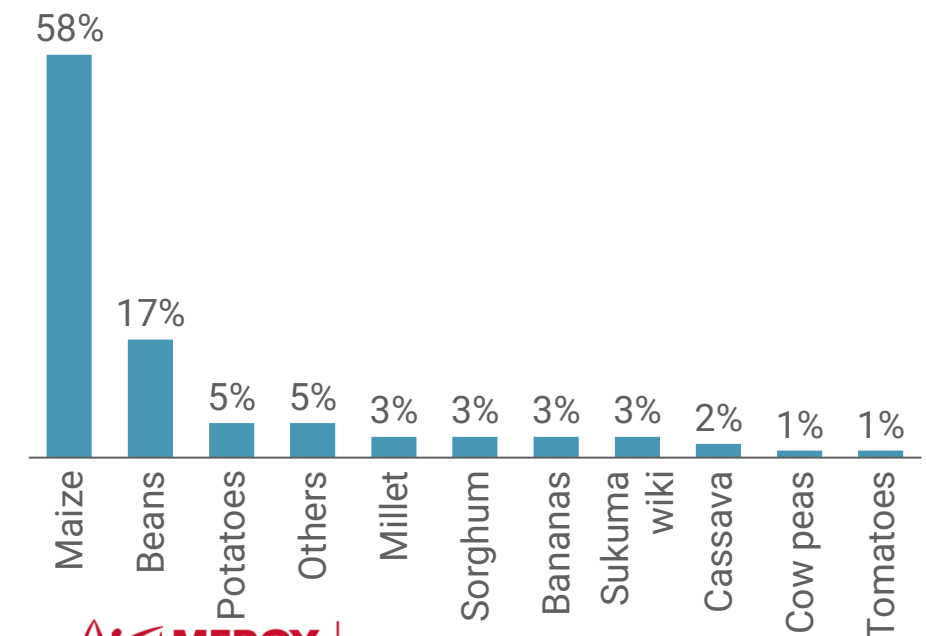
SHFs Value chains (n=2005)

% of the value chains that SHFs are involved in



Food crops cultivated SHFs (n=562)

% of SHFs who cultivate specific food crops



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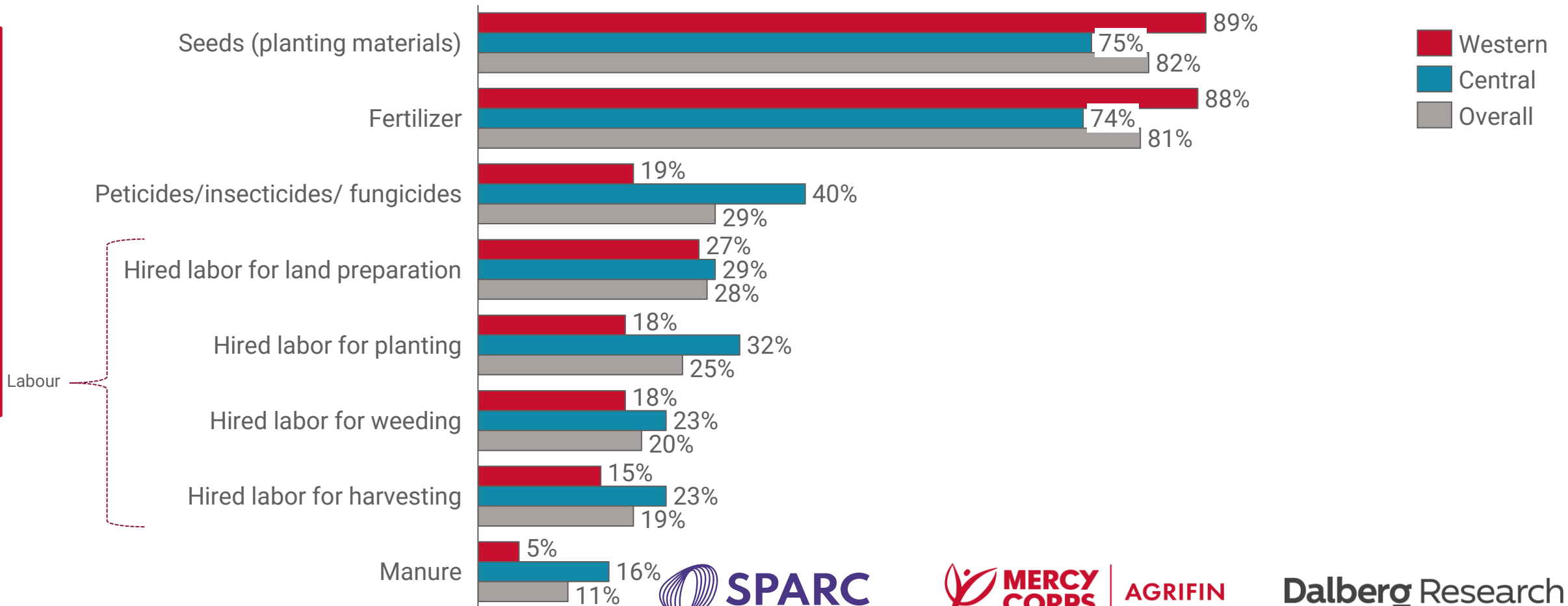
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Source; MercyCorps: Comparative Analysis of Smallholder Farmers in Kenya, Zambia And Tanzania , 2017; AgriFin accelerate, Benchmark study of smallholder farmers of Kenya, 2015
Notes; Other livestock includes poultry (chicken, ducks, turkeys and geese); Others include vegetables such as black nightshade (managu), spider plant (sagaa), amaranth.

Farm inputs contribute the highest in expenditure among SHFs; hired labour is common throughout the season

SHFs expenditure by region (n = 2005)

% of the SHFs by spending



Source: MercyCorps, Comparative Analysis of Smallholder Farmers in Kenya, Zambia And Tanzania, 2017. Agrifin accelerate, Benchmark study of smallholder farmers of Kenya, 2015.

Notes; Central counties included Kiambu, Kirinyaga, Murang'a, Nyandarua, Nyeri. Western counties included Bungoma, Busia, Kakamega, Vihiga

FARM CHARACTERISTICS



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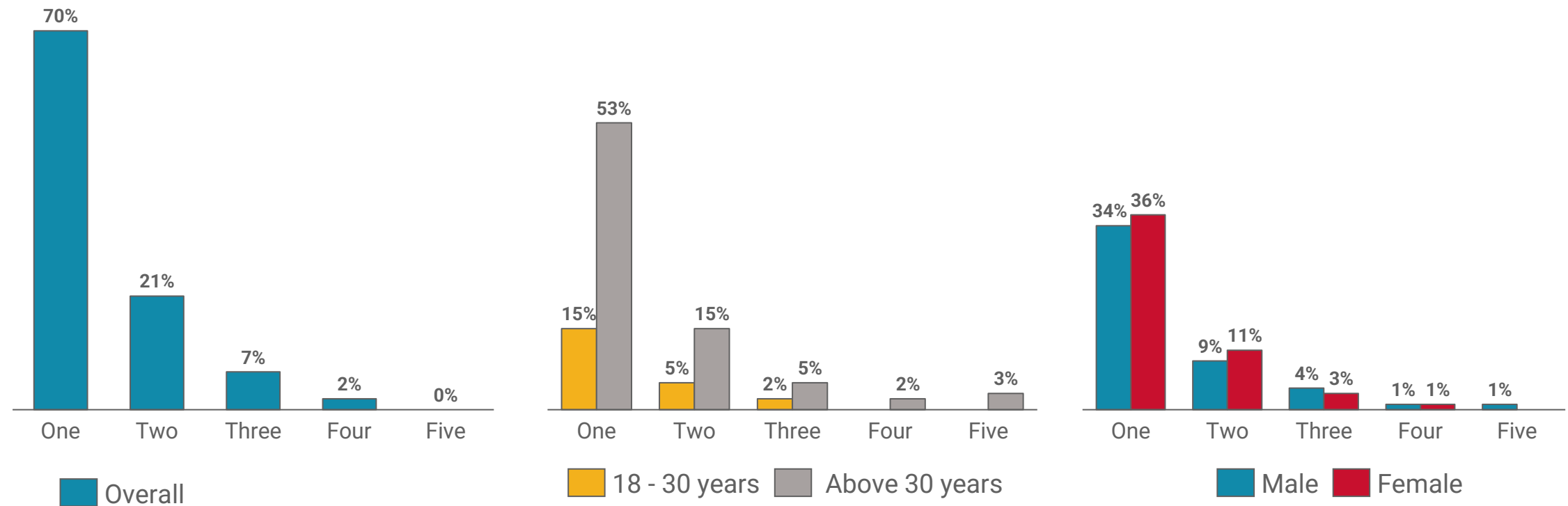
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Seven in ten SHFs cultivate one parcel of land; fewer youth cultivate more than one parcel of land compared to adults

- More than 90% of the SHFs own the land that they cultivate

Parcels of land cultivated by age and gender (n = 1010)

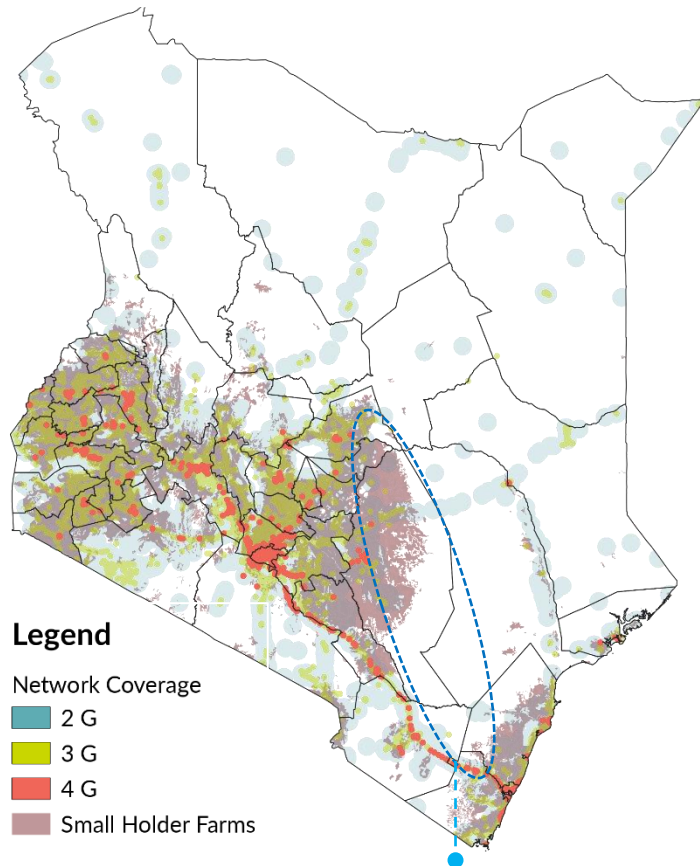
% of SHFs by number of parcels of land cultivated



Although most of the areas where SHF exist is well covered by network; Western parts of Kitui and parts of Lamu remain underserved

Network coverage among SHFs, 2021

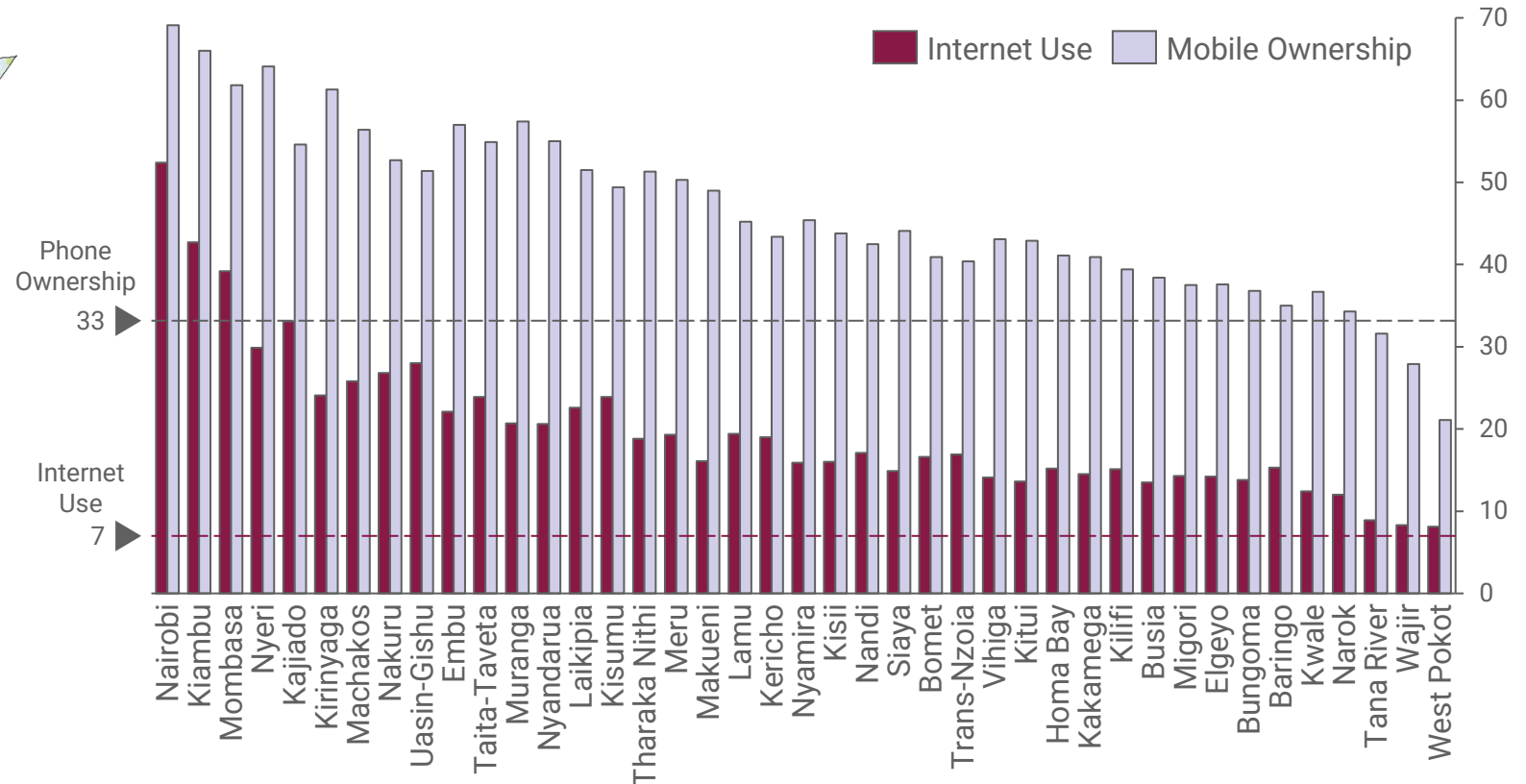
Coverage by type



Small holder farmers in the western parts of Kitui and parts of Lamu have limited network coverage making it difficult to enjoy the benefits of accessing useful information on yield

Source: Malaria Atlas Project, Open Street Maps and GSMA

Level of digital penetration



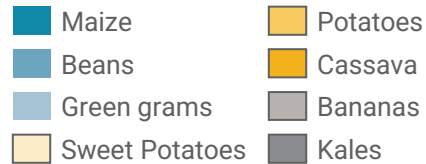
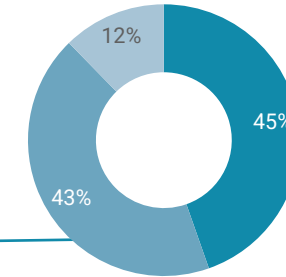
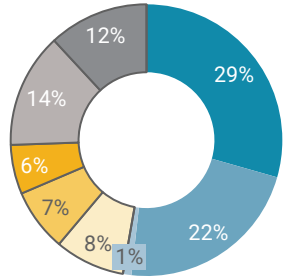
In counties where production is low, SHF are less focused on drought resistant varieties like sorghum and millet

SHF Crop Production

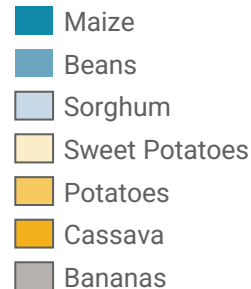
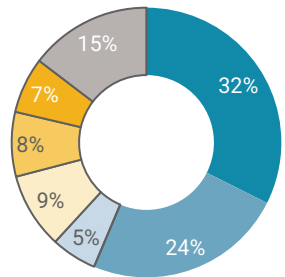
Between 6.3 to 24.1 

per Hectares

Between 0.1 to 2.5 



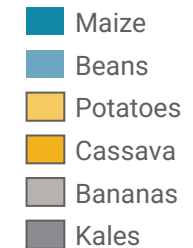
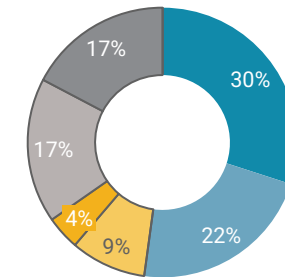
Between 3.9 to 6.3 



Agricultural Productivity (tonnes/ha)

- 0.1 - 2.5
- 2.5 - 3.9
- 3.9 - 6.3
- 6.3 - 24.1

Between 2.5 to 3.9 

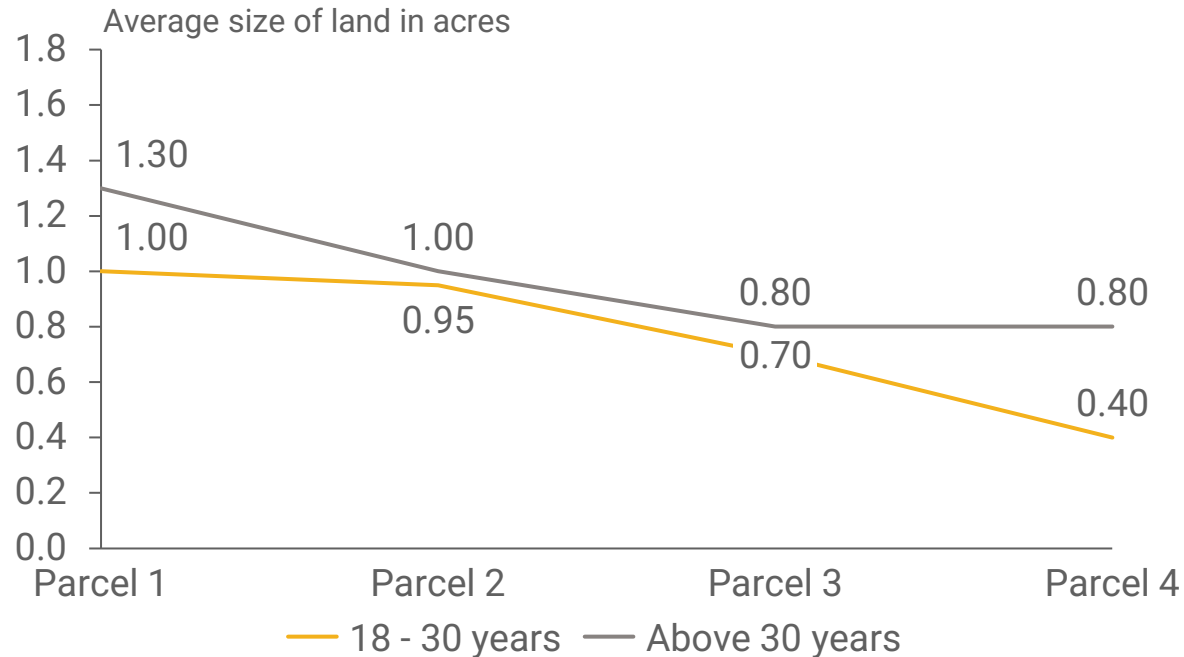


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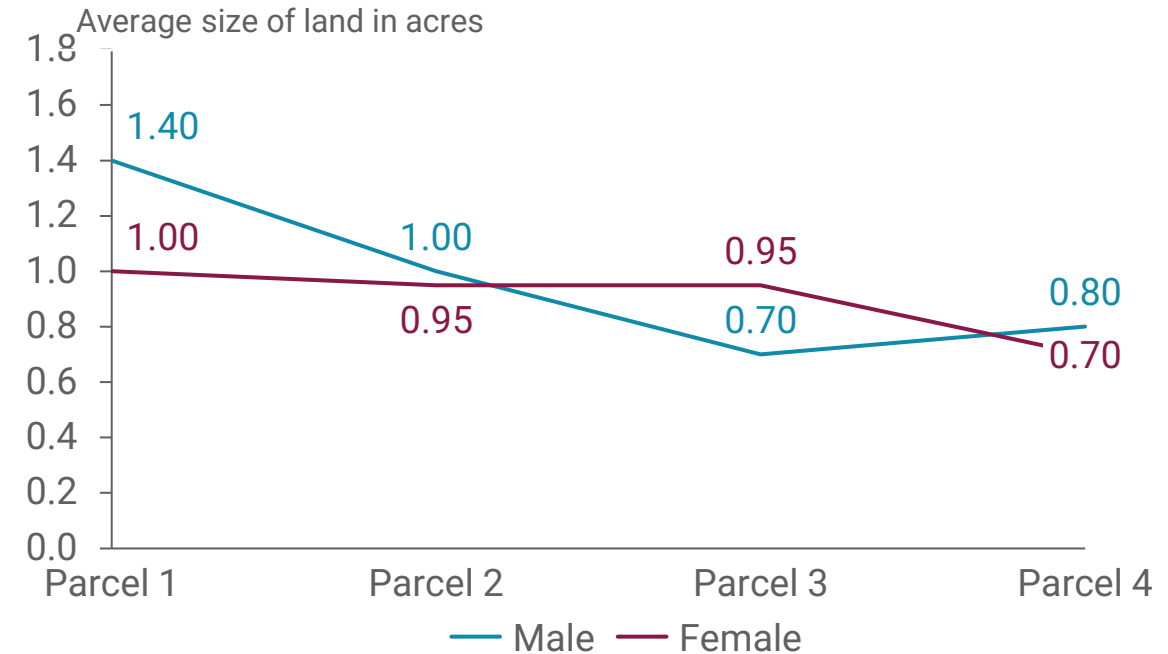
Dalberg Research

The average size of land under cultivation varies with marital status; youth and women cultivate smaller parcels of land

Average size of land under cultivation by age



Average size of land under cultivation by gender



Marital status	Single/ Never married	Polygamously married	Monogamously married	Divorced	Separated	Widowed	Living together/ Cohabiting
Average size of land under cultivation (acres)	1.5	3.6	2.1	1.3	1.1	1.8	1.0

The smaller cultivation land among women can be attributed to the fact that over 65% of land in Kenya is governed by customary laws that discriminate against women, limiting their land and property rights.

FARM CONTEXT



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Dalberg Research

Farmers manage resources in various ways

Mental models of money management show how farmers manage 'money'

Input procurement is the most important expense among other lifecycle expenses once farmers sell their produce.

- Two-thirds of farmers noted inputs as being the most important expense once they received payments from harvest.
- 73% of the farmers noted that agriculture was their main source of income. The majority also noted that 70% of this income was in Mpesa and the rest in cash.
- Some farmers noted that they use proceeds from one crop (like horticulture) to fund input costs for another (like maize).
- Farmers also maintain store of value in assets that do not depreciate with currency.
- Few farmers noted maintaining any savings in form of money, even with savings groups



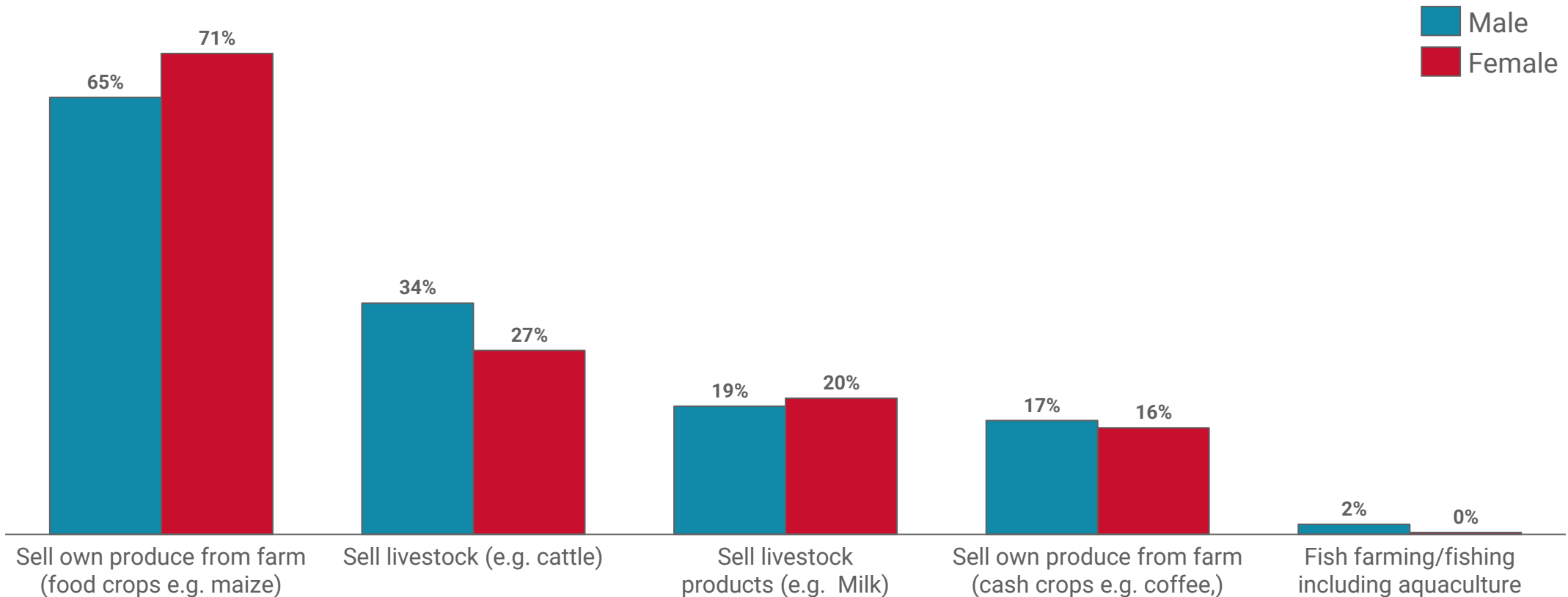
AGRIFIN

Dalberg Research

On market access, more than two thirds of SHFs mainly engage in selling food crops; women lead at 71% compared to men at 65%

Farming activities by gender (n = 5308)

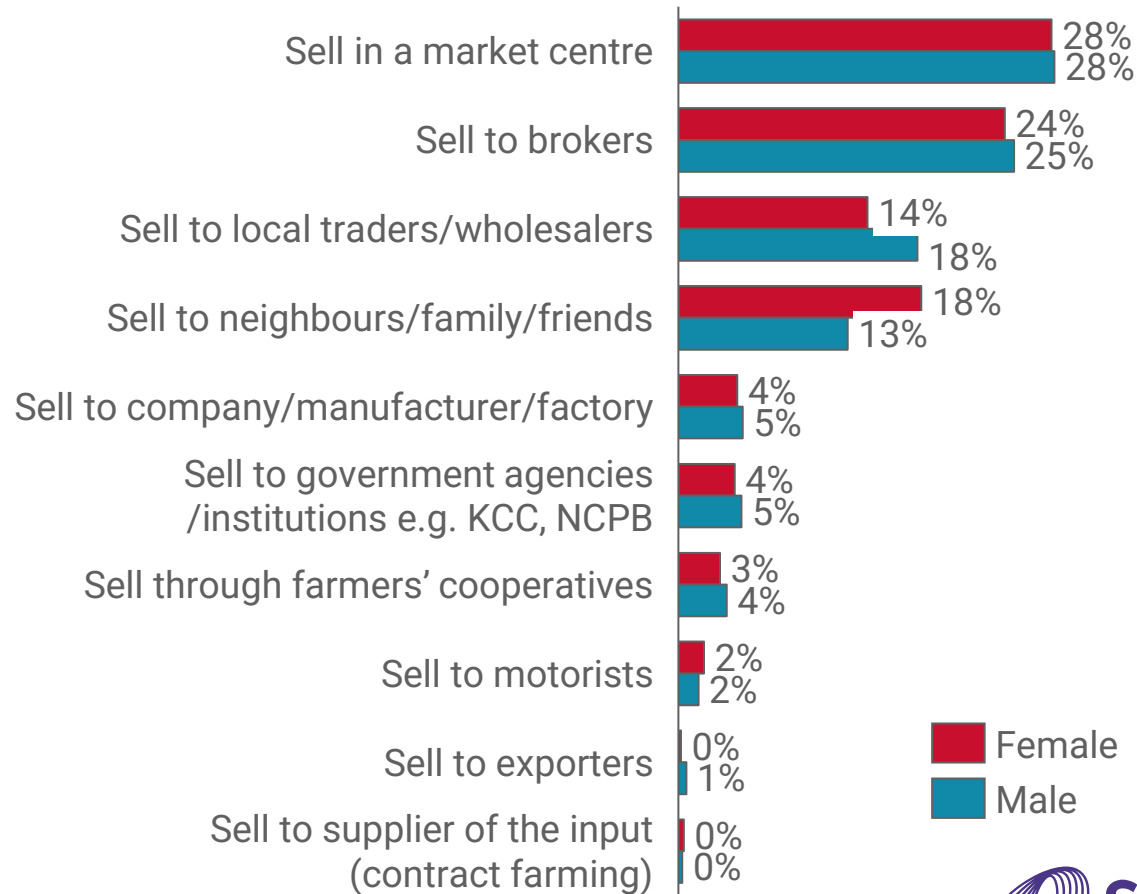
% of the type of farming activities



And their market entry point is through the local market, brokers, local vendors or individual buyers

Points of sale for SHFs agricultural produce (n = 5308)

Avenues used by SHFs to sell their produce (%)



Channel of payment used

% of SHFs by the different payment channels used

- 100% of the market sales and to a neighbour are through cash transactions.
- Sales to brokers are largely through cash (93%). Other payment channels are cheque or mobile money transfer or account transfer (EFT).
- 79% of sales through farmers cooperatives are paid electro; 76% through account transfer (EFT) or 3% by MPESA/mobile money transfer. A quarter of SHFs who sell to processor/ factory are also paid electronically.

Reasons for preferring cash payment

"I prefer cash in hand since it helps in off setting pending bills. While for M-Pesa I use it with buyers who reside far from where my farm is located. They make their orders. When they are ready they pay me through M-Pesa" - FGD participant

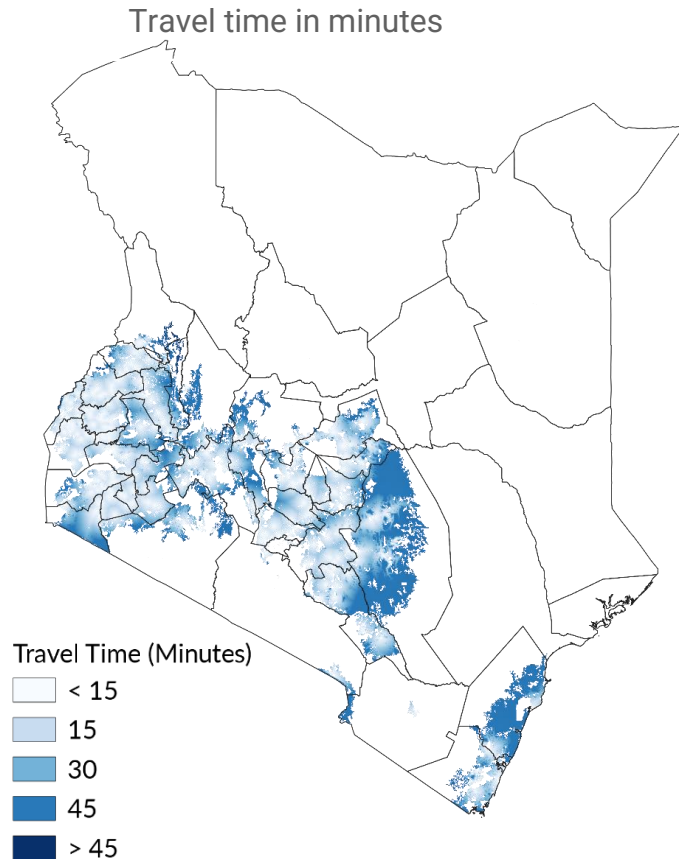


Source: FSD Kenya (FinAccess 2021), Agriculture and Processing Financing Market Analysis , 2022. MercyCorps, Comparative Analysis of Smallholder Farmers in Kenya, Zambia And Tanzania, 2017. Agrifin accelerate, Benchmark study of smallholder farmers of Kenya, 2015.

Notes; Central counties included Kiambu, Kirinyaga, Murang'a, Nyandarua, Nyeri. Western counties included Bungoma, Busia, Kakamega, Vihiga

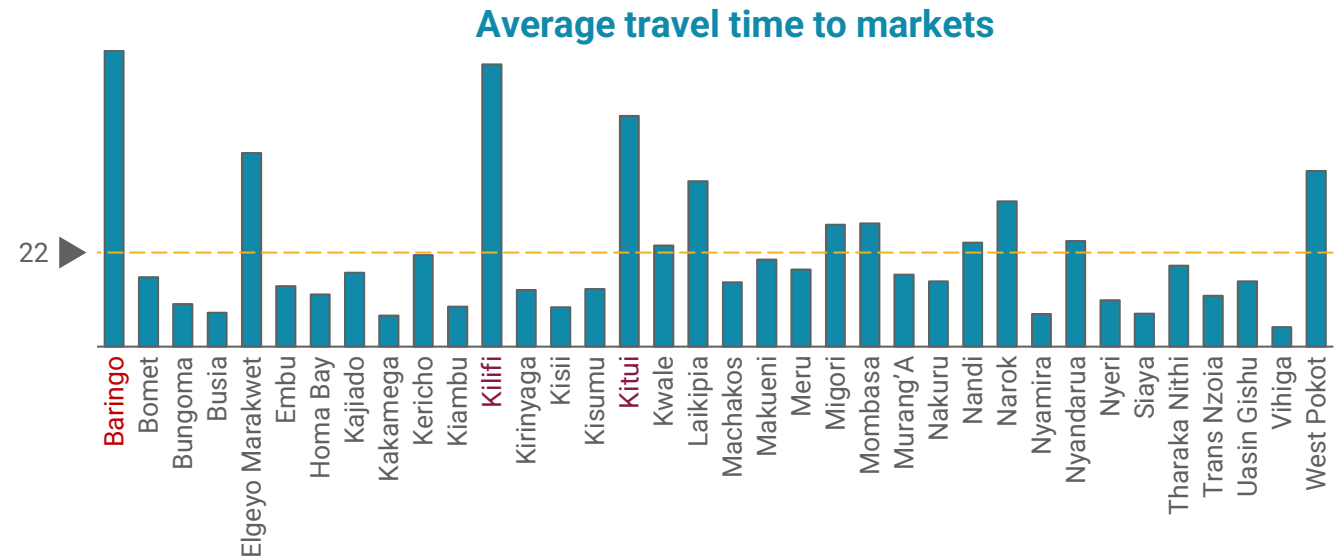
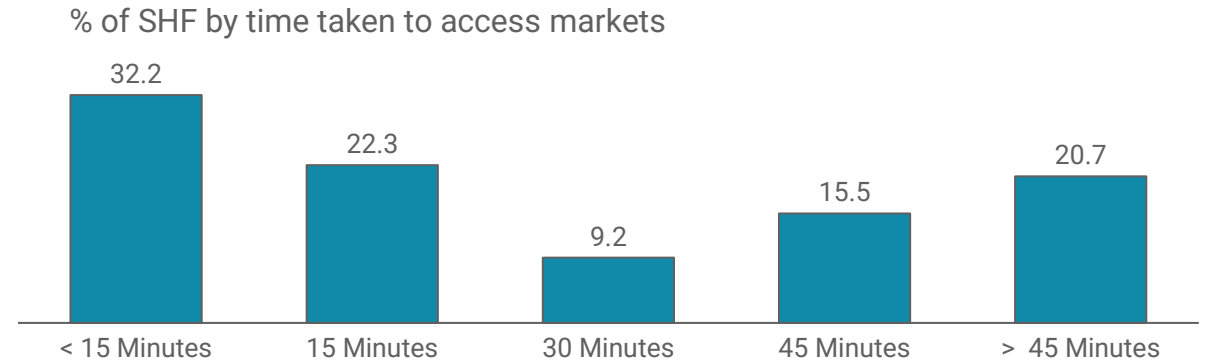
Travel time to markets ranges from ~5 minutes in Vihiga county to ~68 minutes in Baringo county

Travel time to markets



Access to markets has been cited as one of the challenges to agricultural productivity in Kenya among small holder farmers. Distribution of markets is limited in some parts of the country, calling for interventions towards **improving the access**.

Number of SHFs by average travel time to markets



ACCESS TO FINANCE



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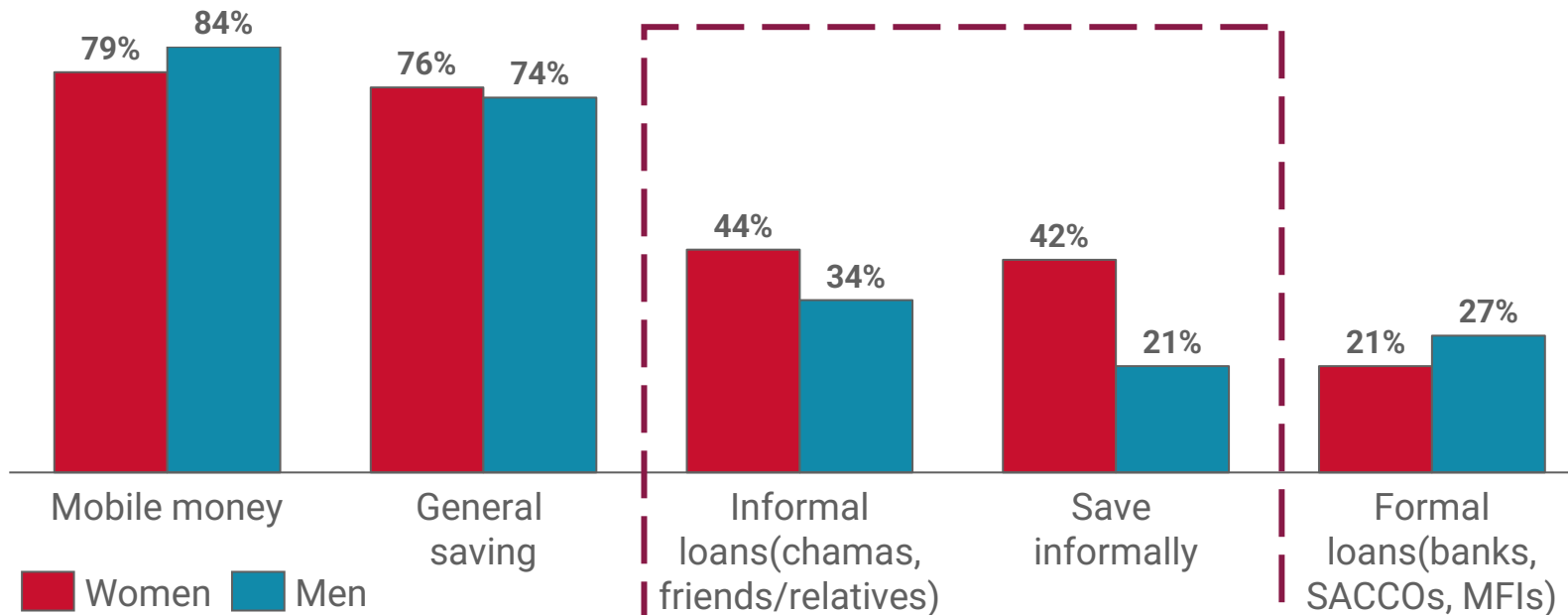
Dalberg Research

Access to formal sources of agricultural finance is lower among SHF women compared to men

- Women tend to have greater access to informal lending sources, compared to men who have access to formal financial services. In rural areas, women are more likely to utilize agri-finance from groups like table banking and chamas, as they trust these sources due to their less stringent regulations, compared to formal sources¹
- Women in rural areas struggle with access to formal funding for agriculture due to a lack of collateral and limited decision-making power. This forces them to turn to informal finance sources. Addressing these barriers through initiatives and policies promoting gender equality is important for improving women's access to financial services in agriculture.

Access to finance (n= 5308)

% financial access by gender



Key highlights on financial access

- SHFs women save more than men (76% and 74% respectively)
- More men than women are using formal loans (27% and 21%) unlike informal loans
- SHFs have high access to mobile money (81%) with both women and men accounting for 79% and 84% respectively



AGRIFIN

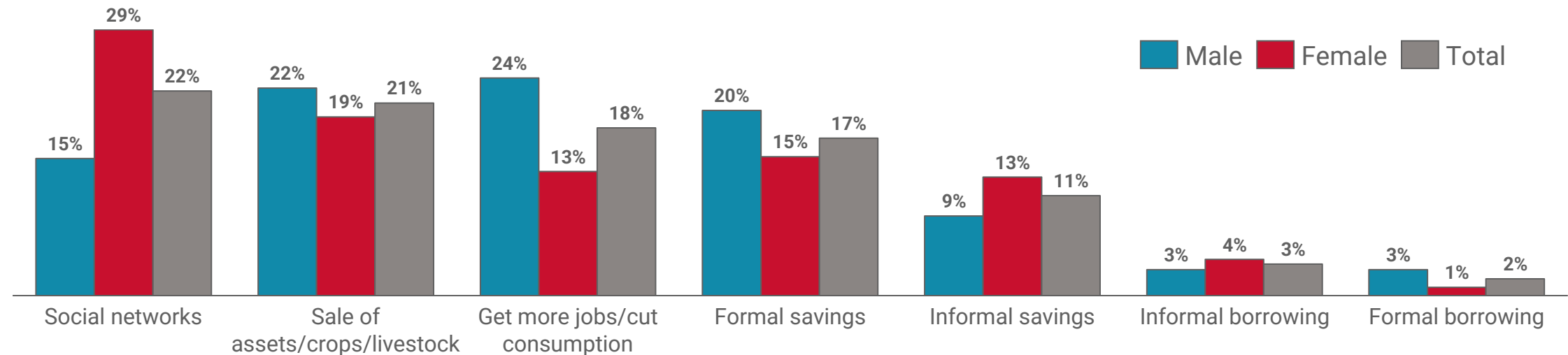
Dalberg Research

Social networks are the most common sources of financing for SHFs; women are 2x more likely to get funds through social networks than men

- In agriculture, access to finance is divided into loans, savings, and insurance. The results of comparing access to these forms of finance show that access to agricultural loans is a key factor.
- Generally, men have better access to formal and responsible agricultural loans, while women in rural areas prefer informal and unreliable sources, with older women in rural areas having the highest access to these loans.¹
- SHFs mostly rely on social networks for financing, with women being more likely to receive funds this way. The significance of social networks as a financial source, especially for women who face challenges accessing traditional financing, highlights the need for support.
- Social networks of financing in Kenya are networks of individuals and organizations that provide financial support to smallholder farmers (SHFs), particularly women. This includes friends, family, community organizations, microfinance institutions, and other informal sources. These networks serve as a vital source of funding, including seed funding, working capital, and long-term loans, for small-scale agriculture businesses.

Sources of Funds for Financing Agricultural Operations by Gender (n= 5308)

% of SHFs by source of financing



AGRIFIN

Dalberg Research

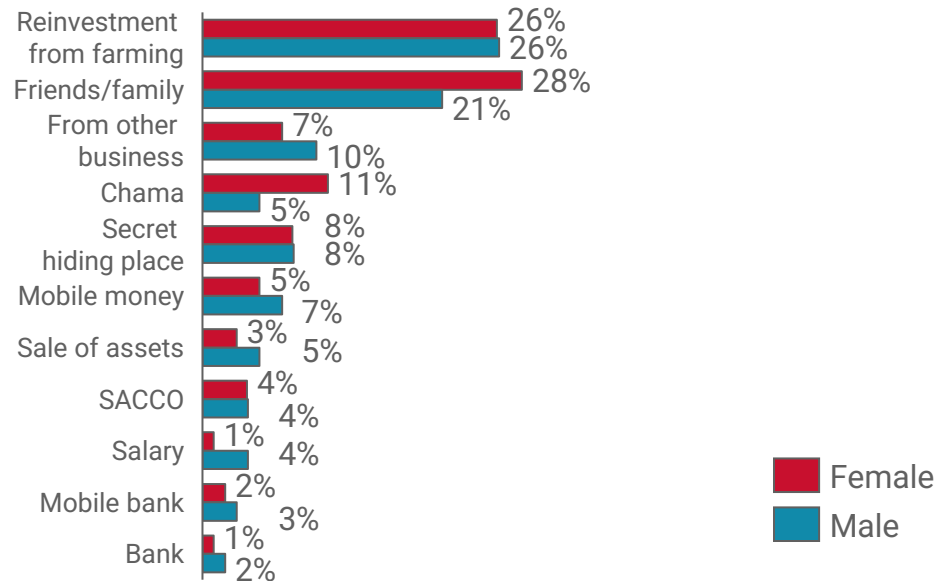
Source: FSD Kenya (*FinAccess 2021*), Agriculture and Processing Financing Market Analysis, 2022; ¹KIPPRA, Women's Access to Agricultural Finance in Kenya: Baseline Report, 2019

SHF women tap into fewer and less formal sources of financing for lack of options/trust

- Access to finance in agriculture is broken down into three categories: loans, savings, and insurance. The results of comparing access to these different aspects of agri-finance are noteworthy. Access to agri-loans is considered a crucial factor in agricultural finance access
- Men have higher access to formal, responsible agri-loans, while women in rural areas prefer informal, non-responsible sources. Older women in rural areas have the highest access to agri-loans from these sources¹

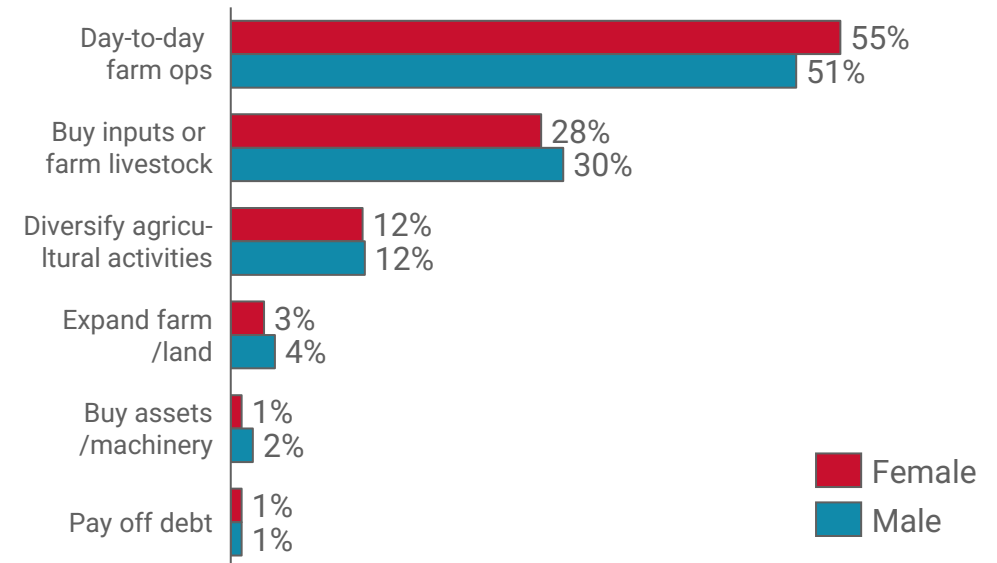
Top sources of Agri-finance for SHFs (n= 5308)

% sources of agri-finance by gender



Usage of agri-financing by SHFs (n= 5308)

% agri-finance usage by gender



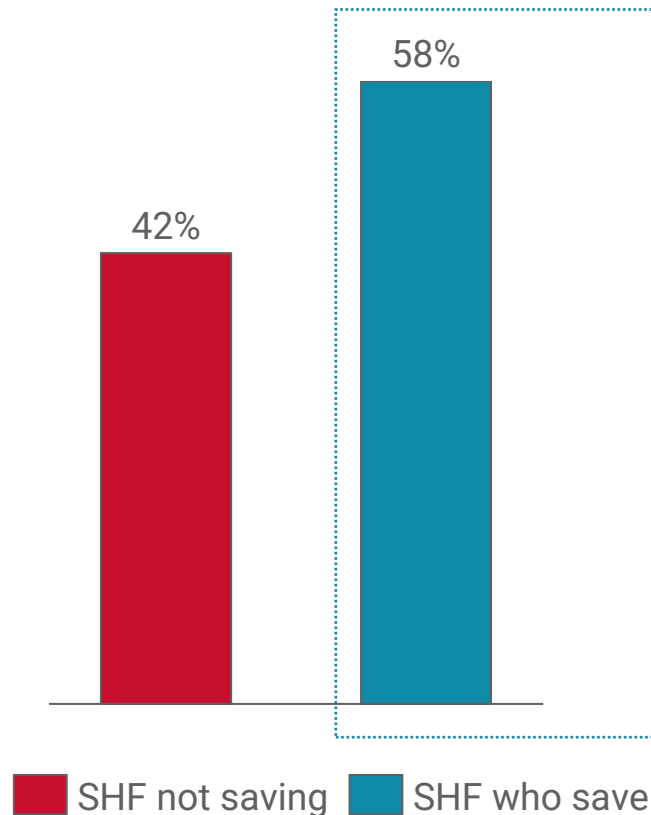
Men are more likely to seek credit for the purpose of buying agricultural assets and machinery, with the highest demand coming from those aged 35-54 years living in urban areas (25.9%). Women have a higher demand for agri-credit for farm or land expansion, with the highest demand among women aged 16-34 years living in rural areas (10.1%)²

More than half of the SHFs have cultivated a saving culture, often through mobile money (KCB M-pesa, M-pesa and M-shwari)

- 33% SHFs cite the frequent usage of saving groups and most have moved away from saving at home (1.2% save in a hidden place)
- Banking and mobile money services is an indicator of reduced financial exclusion levels among SHFs

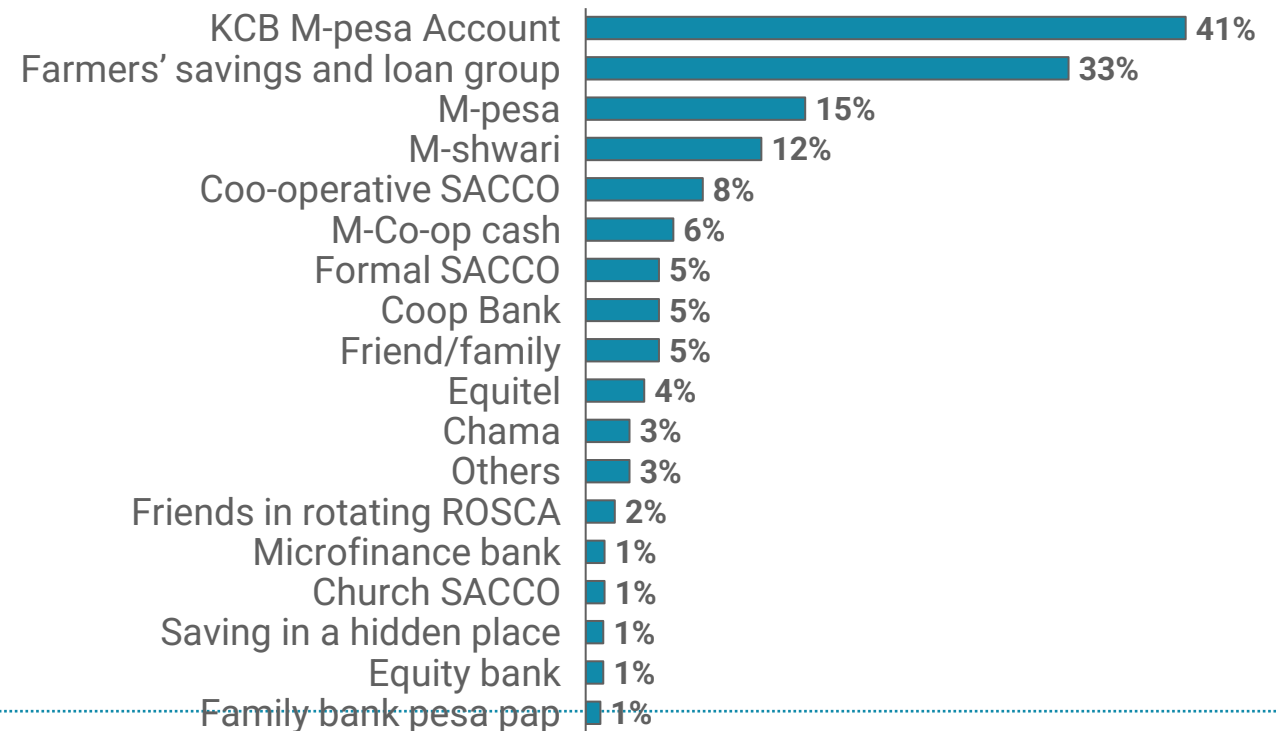
SHFs saving behavior (n=2005)

% SHFs saving behavior



Saving channels used by SHFs (n=2005)

% saving channels used by SHFs



SPARC



AGRIFIN

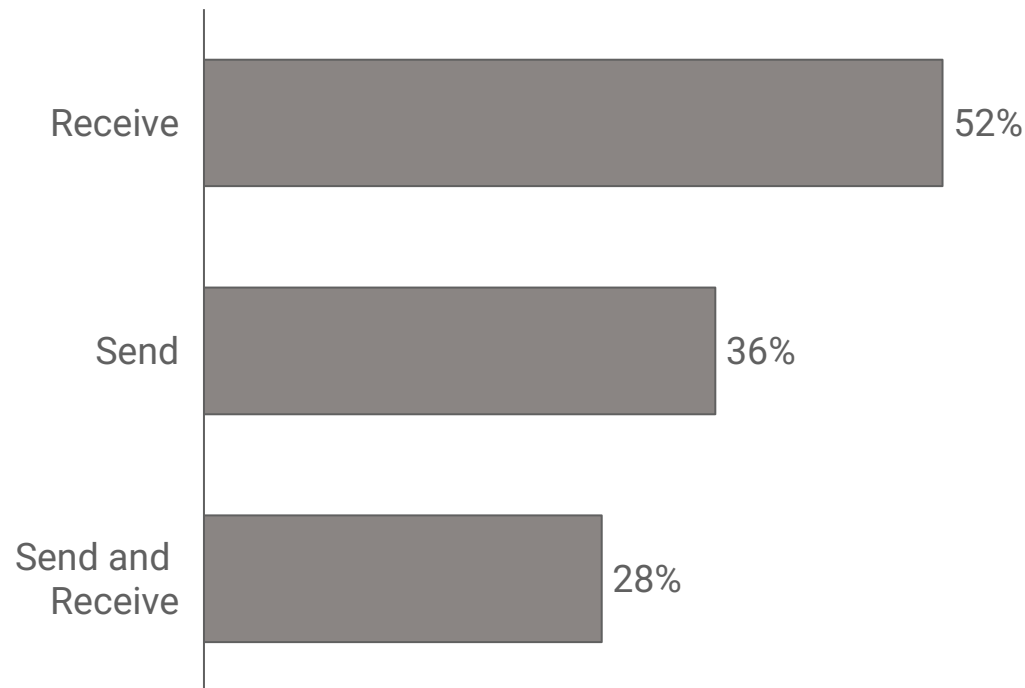
Dalberg Research

SHFs receive more remittances than they send monthly from family and friends; fewer young farmers are sending or receiving remittances

- Mobile money is the primary method for sending and receiving money, regardless of the farmer's age, with remittances occurring once or twice a month.
- About half of the SHFs report retaining some of the remittances received, not cashing out the full amount immediately.
- The funds are mainly used for basic consumption, education, buying farm inputs, and paying medical bills in that order of priority

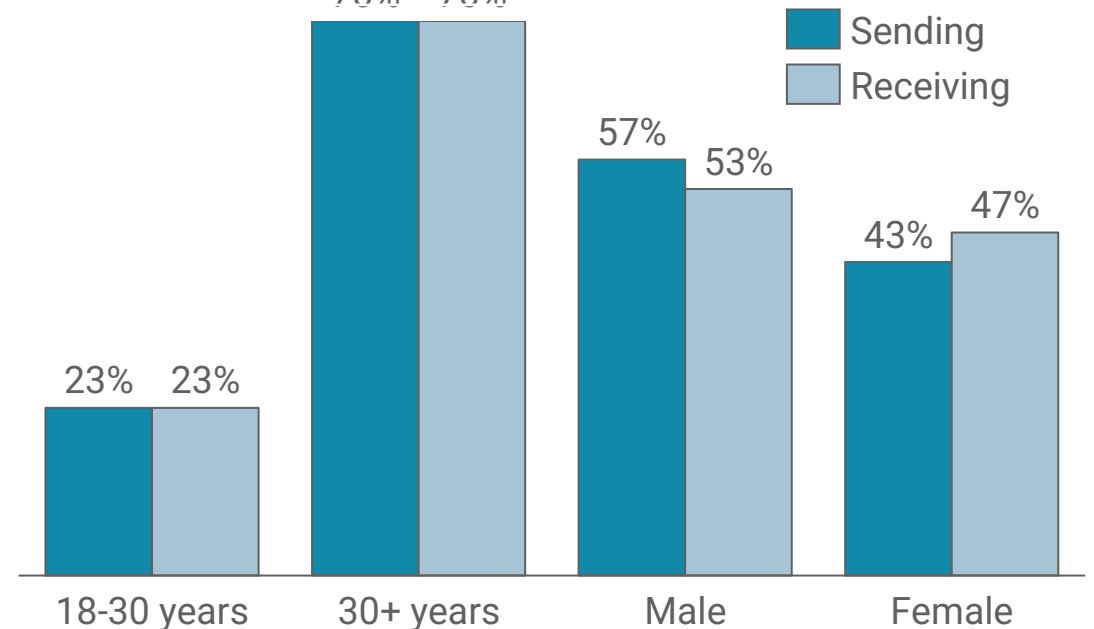
Sending and receiving remittances (n=671)

% of SHFs who send and receive remittances



Sending and receiving remittances by age and gender

% of SHFs who send and receive remittances

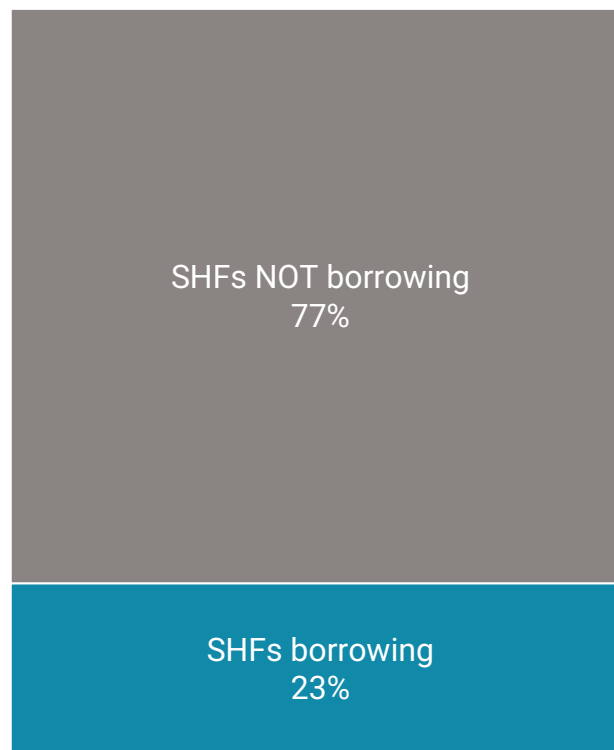


Less than a quarter of the SHFs borrow money; majority of the borrowers prefer the chamas, M-shwari or SACCOs to other formal loans

- Most of these borrowers have moved away from borrowing from friends
- Average amount borrowed is below KSH. 10,000 per SHF and it is over a short period of time

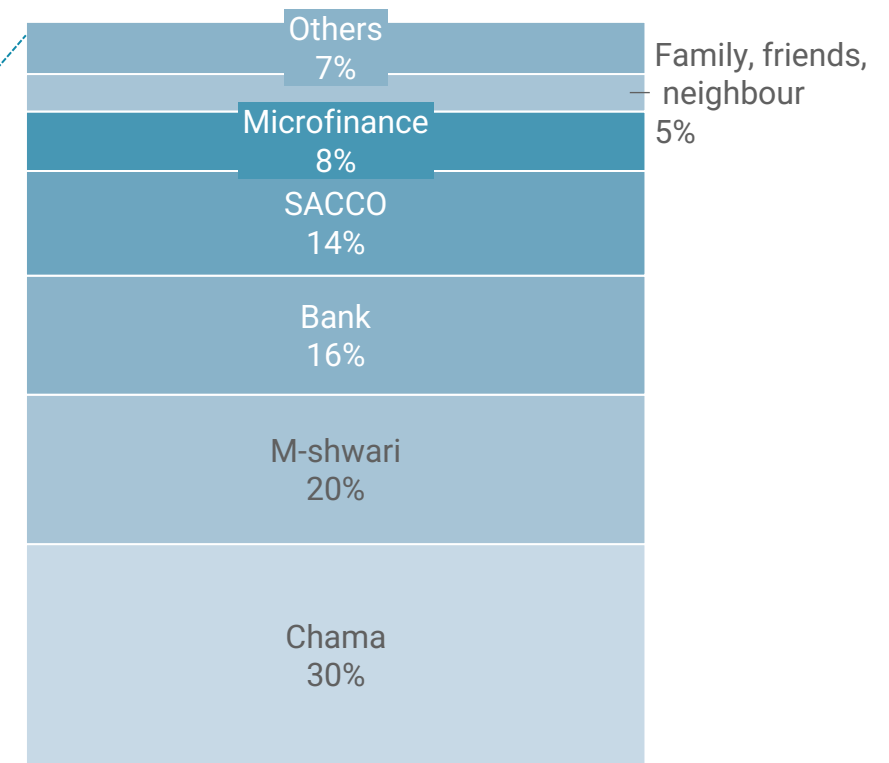
SHFs borrowing behavior (n=2005)

% of SHFs who borrow



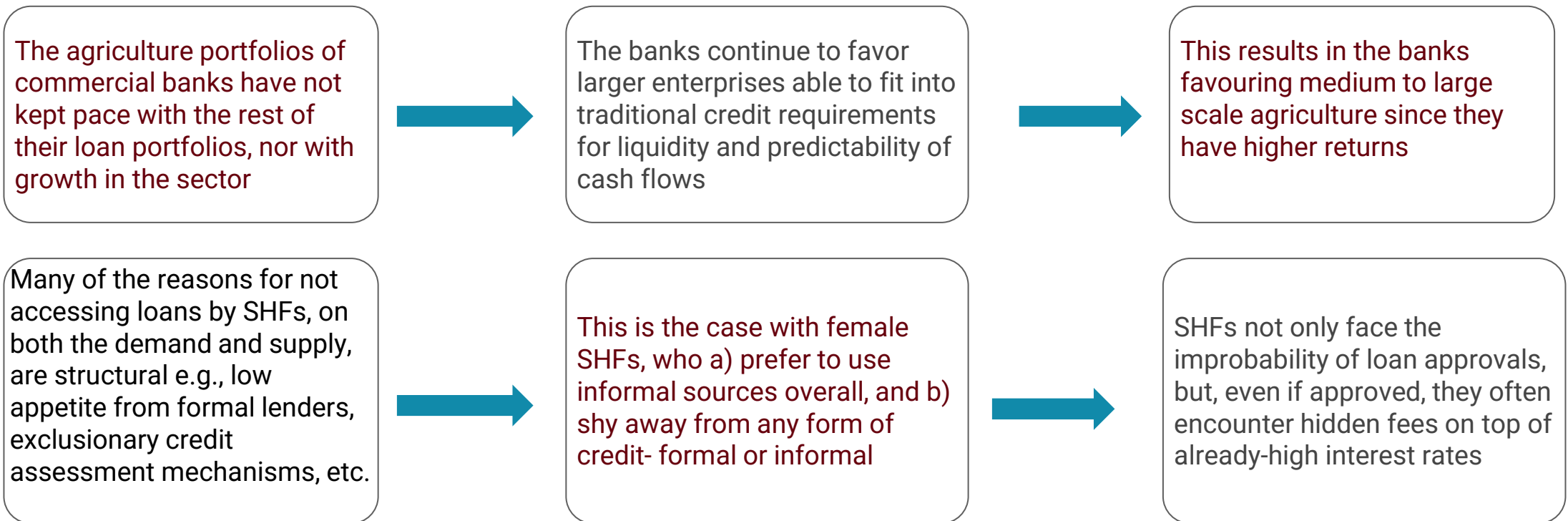
Channels used for borrowing by SHFs (n=462)

% of SHFs by channel for borrowing



Only 10% SHFs access agri-financing through formal sources; most do not access any type at all

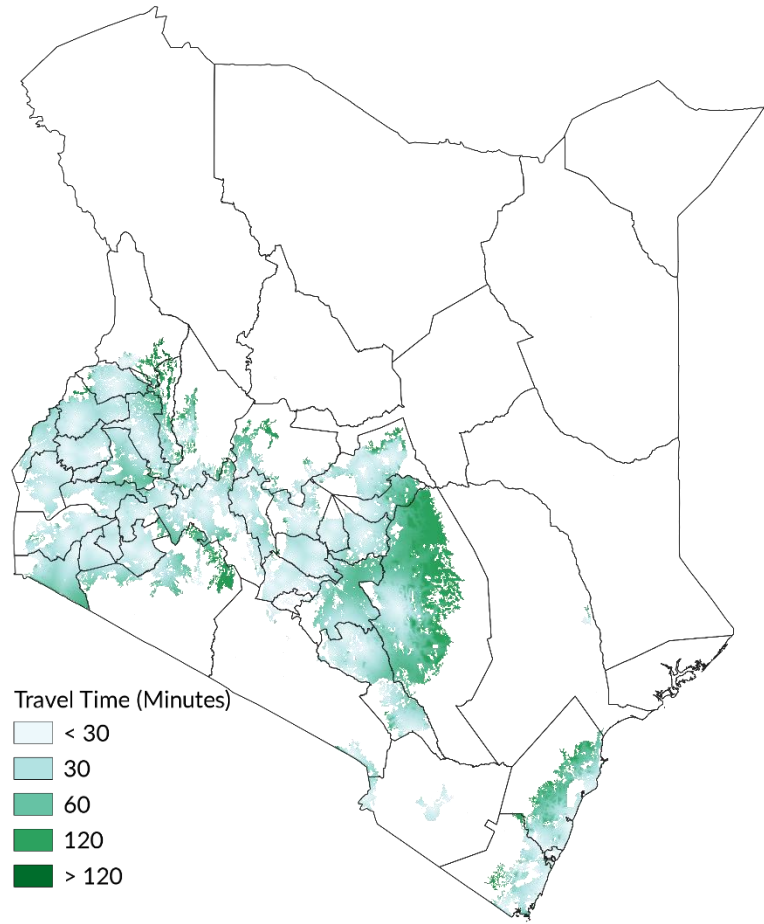
- Limited access to professional infrastructure and financial markets can be attributed to several factors such as:
 - a. Insufficient loan requirements by smallholder farmers (SHFs), including high collateral requirements, short loan tenor, high interest rates, and complicated application procedures.
 - b. Skills gap, including a lack of proper business records, record management, market analysis, and business model development, as required by funders.
- Some of the highlighted challenges impeding access to credit by SHFs are as indicated:



Travel time to Financial institutions ranges from 6 minutes in Mombasa to ~80 minutes in Kitui

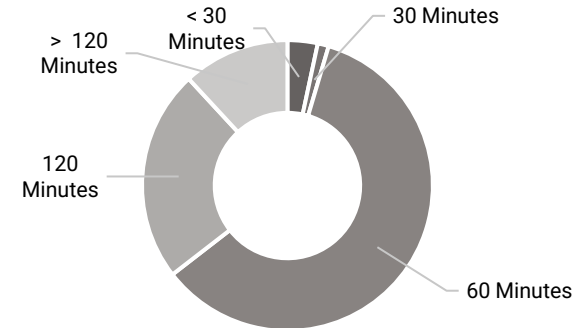
Travel time to financial institutions

Travel time in minutes by use of a motorized means

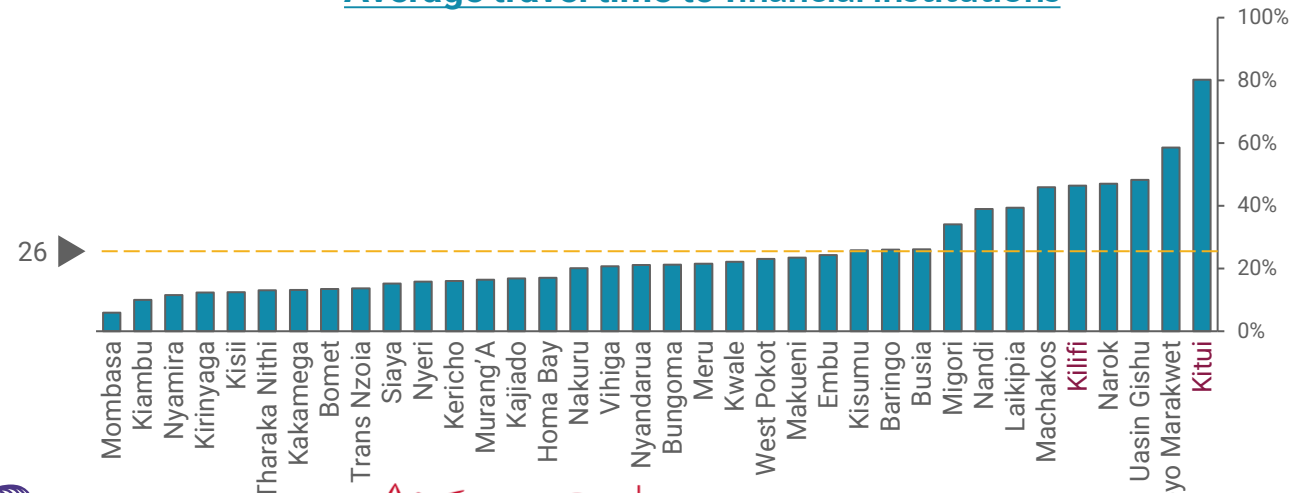


Proportion of SHFs by travel time to financial institutions

% of SHF by time taken to access financial institutions



Average travel time to financial institutions



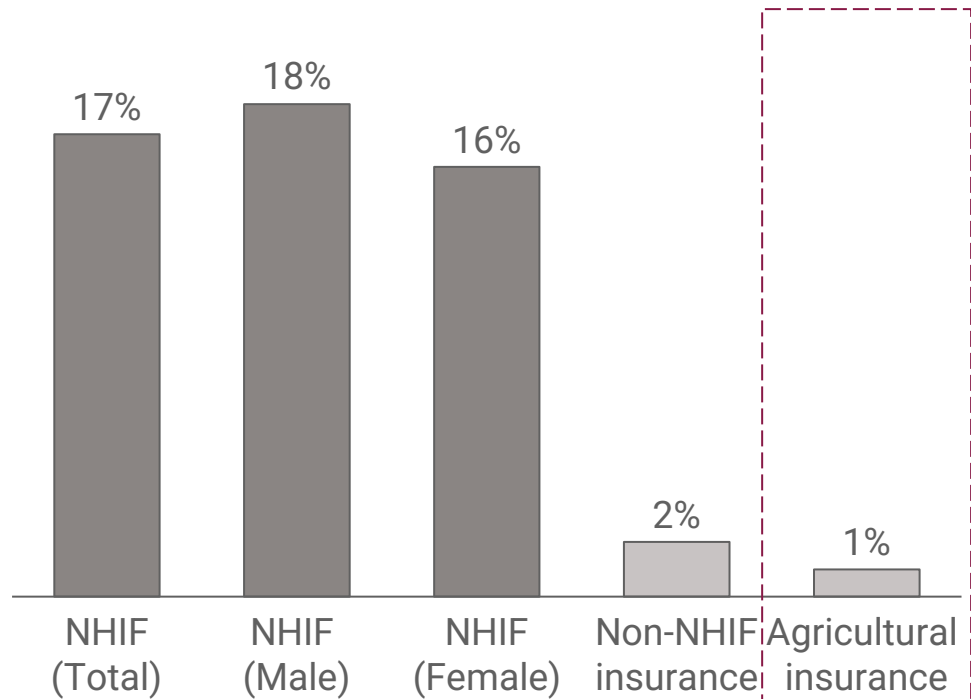
Notes: The analysis was based on farm locations and not smallholder farmers
Source: Malaria Atlas Project, Open Street Maps and LOCAN Analysis

The uptake of insurance (agricultural or non-agricultural) is very low among SHFs; little to no agricultural insurance is taken up

- Adoption and usage of agricultural insurance is low among smallholder farmers. This is due to low awareness, high insurance premiums, and slow claim settlement processes¹

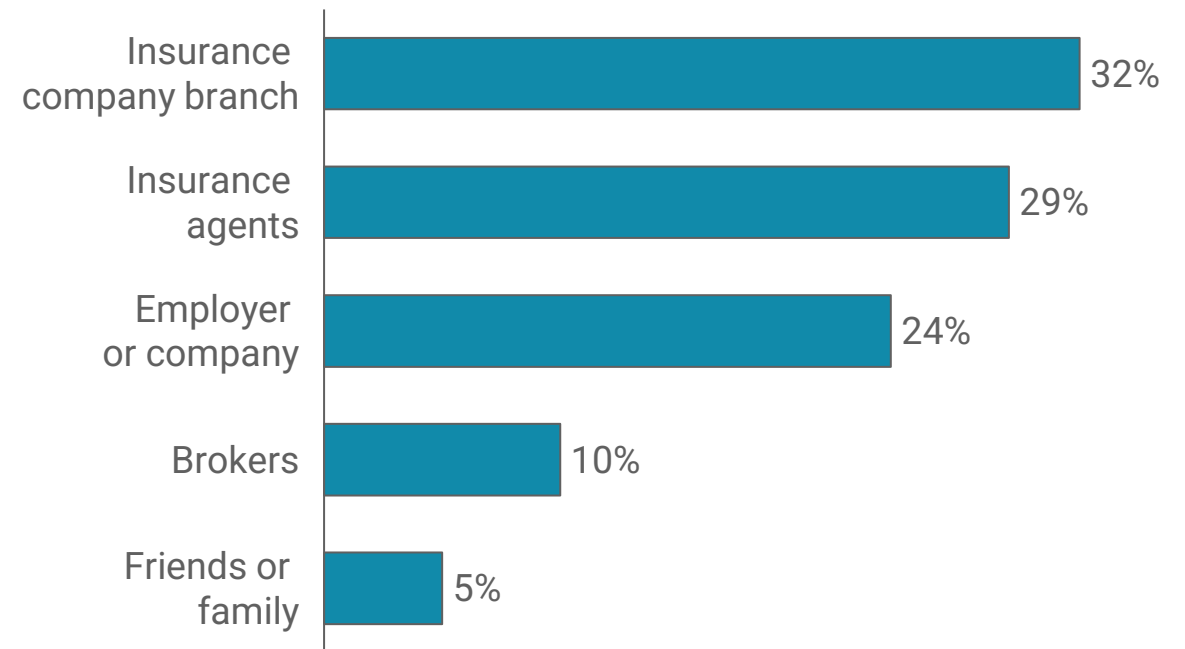
Access to Insurance Services (n= 5308)

% of SHFs with Insurance



Channels through which SHFs purchase insurance

% of purchase channels



Source: FSD Kenya (FinAccess 2021), Agriculture and Processing Financing Market Analysis, 2022; MercyCorps; Comparative analysis of smallholder farmers in Kenya, Zambia and Tanzania, 2017; ¹[Agricultural Insurance for Smallholder Farmers Digital Innovations for Scale.pdf \(gsma.com\)](https://www.gsma.com/digitalinnovation/insights/agricultural-insurance-for-smallholder-farmers-digital-innovations-for-scale.pdf)

ACCESS TO INFORMATION SERVICES



AGRIFIN

Dalberg Research

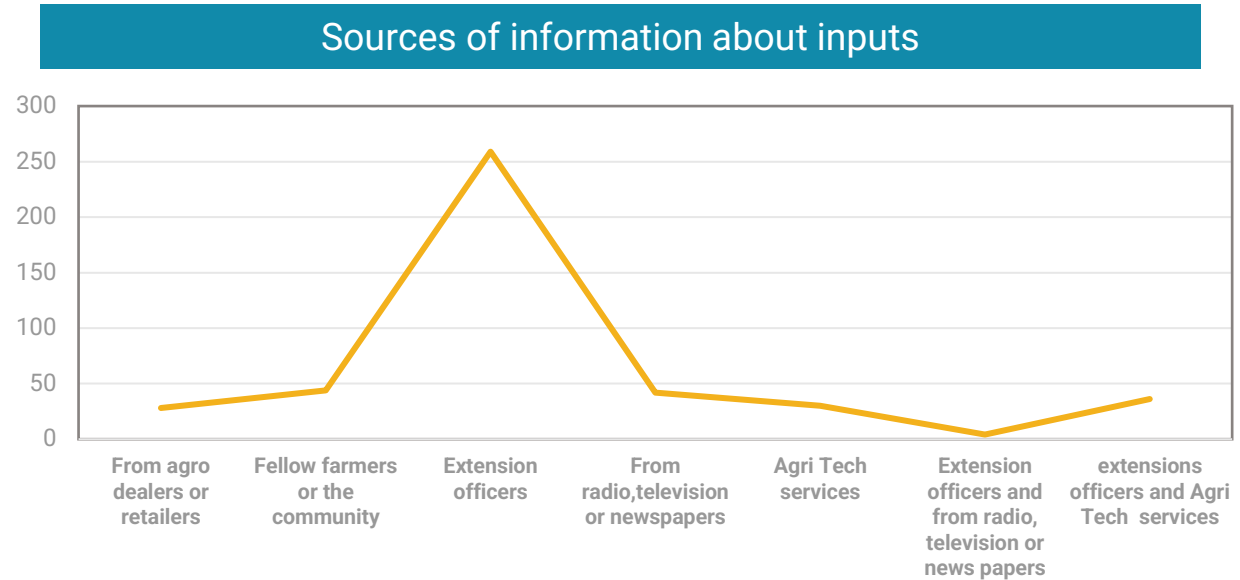
The influence of extension officers on information Access by SHF's can NOT be underrated

Farmers' information sources for choice and amount of inputs is based on trust and familiarity with other stakeholders



Farmers noted that they can get the information on best farming practices from the following sources

- Extension officers advise farmers on the best variety of seeds to plant for their region and how to tend to them.
- Farmers also cited self-experience from previous seasons and observation of other successful farmers as sources of reliable information to choose inputs.
- Agri techs were cited as a source of farming news and farming tips by 9.2% of the farmers interviewed.
- Most farmers admitted to knowing the right quality and quantity of input even when they did not manage to use them due to economic constraints.



Implication

AgriTech need to leverage the influence of extension officers to promote their services.

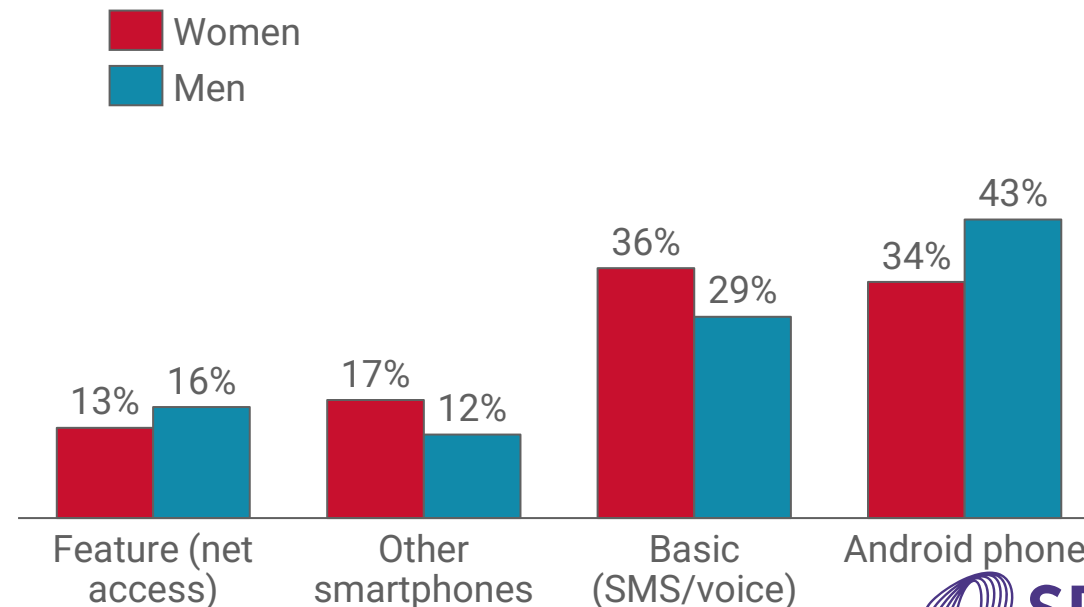
One of the agro-dealers was quoted saying, "Once the farmers have been advised by the extension officers it is very hard to change their mind".

Access of information through cellphone among SHF's is higher among the youths; while women have a high likelihood of owning a basic phone than a smartphone

- Cellphone ownership among smallholder farmers decreases with age, with older farmers having limited literacy, particularly in English. Moreover, older farmers prefer to get information through alternative channels such as radio, other farmers, and visiting agricultural officers.¹
- On the other hand, the younger farmers (<35year of age) are more comfortable using the new digital channels specifically social media to access information on agricultural practices

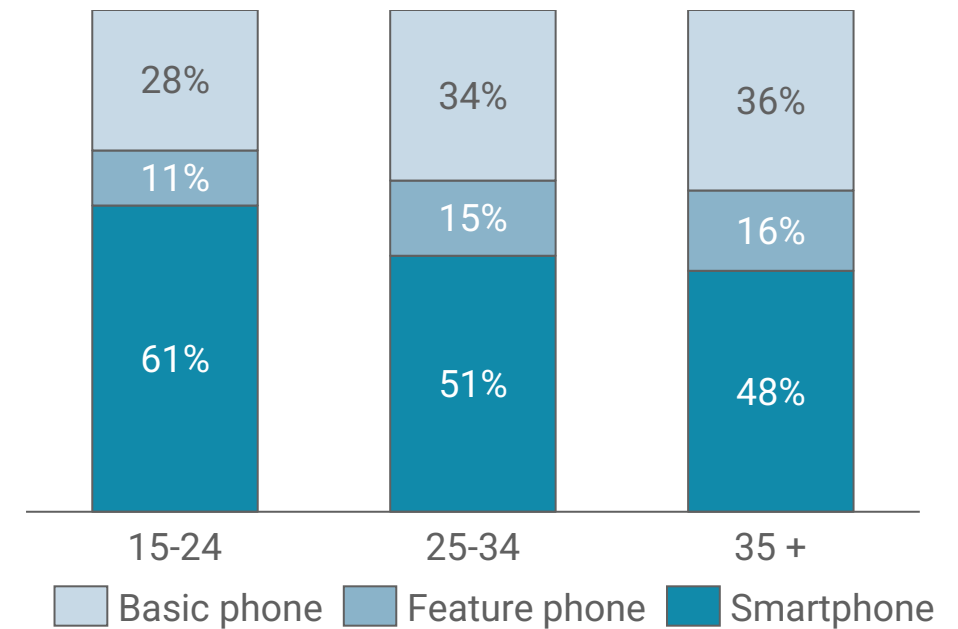
SHFs cellphone ownership (n= 900)

% of SHFs who own cellphones by gender



Cellphone ownership (n=900)

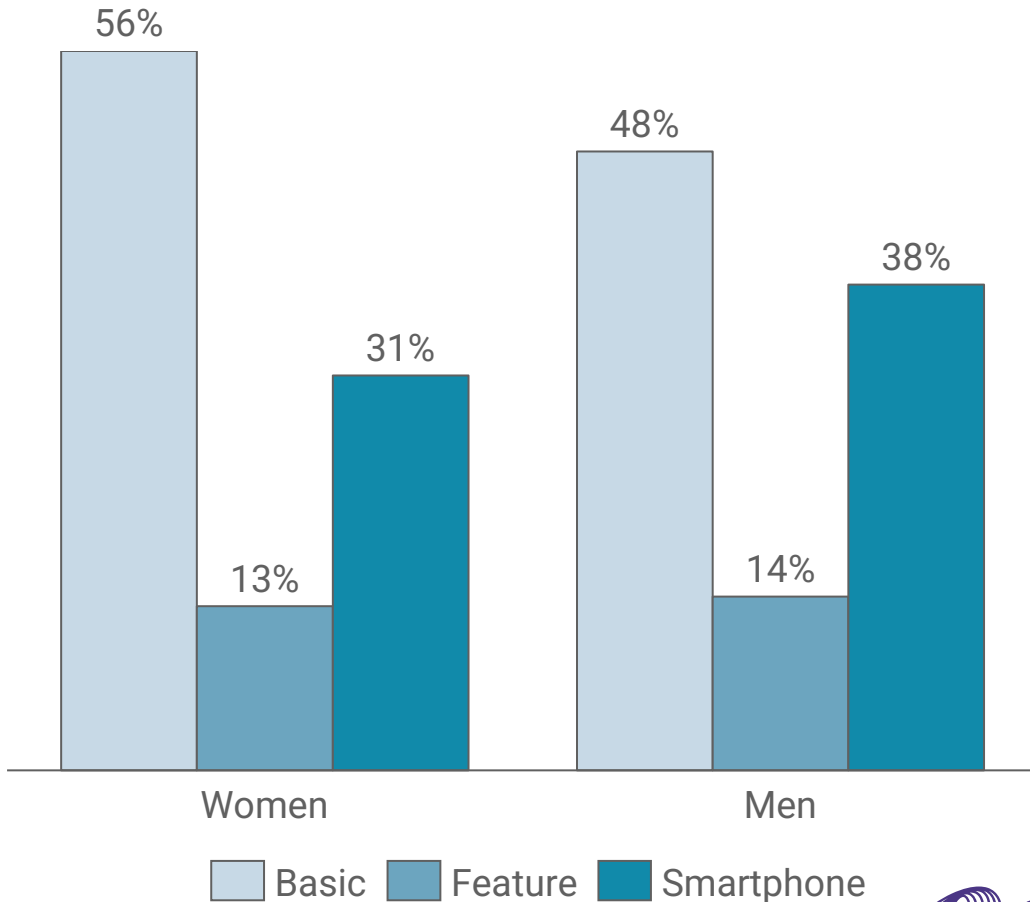
% type of phones owned by SHFs by age



In most cases smartphone users look out for general agricultural information especially access to market

Handset ownership by SHFs

% type of phones owned by SHFs



A study in central Kenya found out that

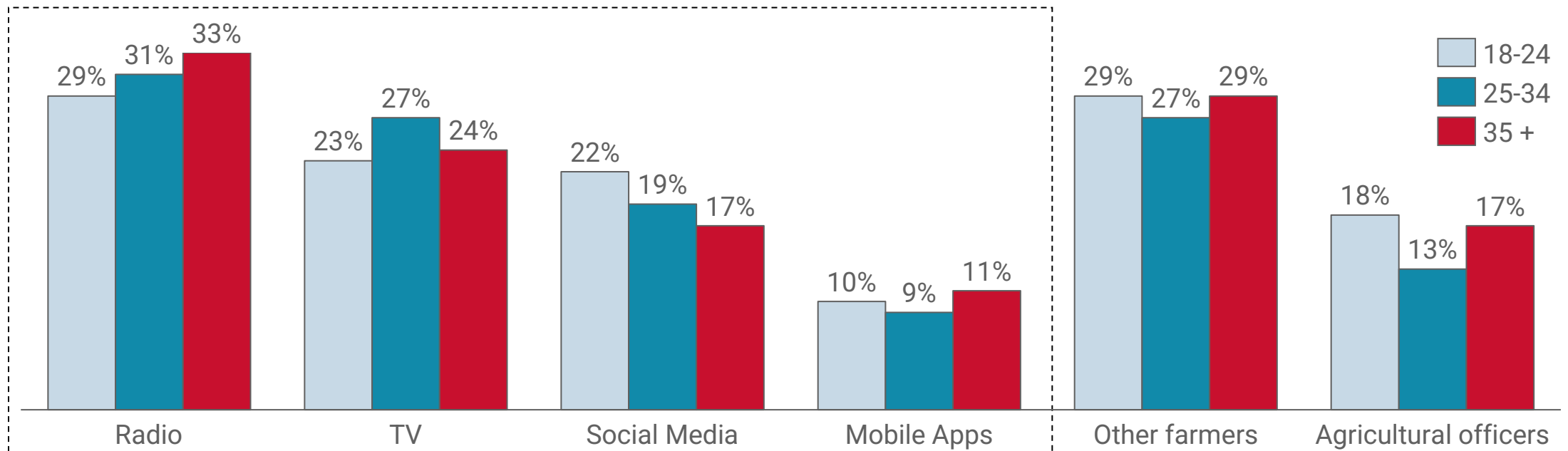
- ❖ ~ 98% of the SHFs in the Central Kenya region own cellphone; showing a nearly ubiquitous cellphone usage
- ❖ Adoption rates of mobile services, however, is not widespread in the region; 25% of SHFs access general information about agriculture, 23% access information about buying or selling their agricultural products whereas 18% use their phones to receive alerts
- ❖ SHFs in this region use all sorts of apps to access information. The most common apps include: WhatsApp, Facebook and iShamba
- ❖ Smartphone ownership plays an important role in the use of mobile services; the smartphone owners are twice likely to use mobile services for farming and getting alerts
- ❖ Belonging to a farmer group in order to learn or share information services has an influence on using mobile services. SHFs who belong to farmer groups such as agricultural cooperatives, Community Water Projects or other farmer groups have higher usage of mobile services compared to non-members in the region
- ❖ To better leverage the mobile services that already exist, farmer groups can serve as key channel for improving awareness and use of such services

SHFs access agricultural advisory services both digitally and non-digitally; low-tech methods are popular for farmers looking to gather information

- Word of mouth (other farmers and agricultural officers) is still commonly used to gather agricultural information by the farmers. The youth are more inclined towards social media whereas the elderly towards low-tech methods
- Mainstream media (TV and radio) is the most prevalent source of information among majority of SHFs¹ and even among the older farmers (35+). This group of farmers tend to feel more comfortable with information rendered by low-tech methods (radio, TV, other farmers and agricultural officers)

Sources of Agricultural Advice (n=900)

% of SHFs who accessed agricultural advice through digital extension and advisory services

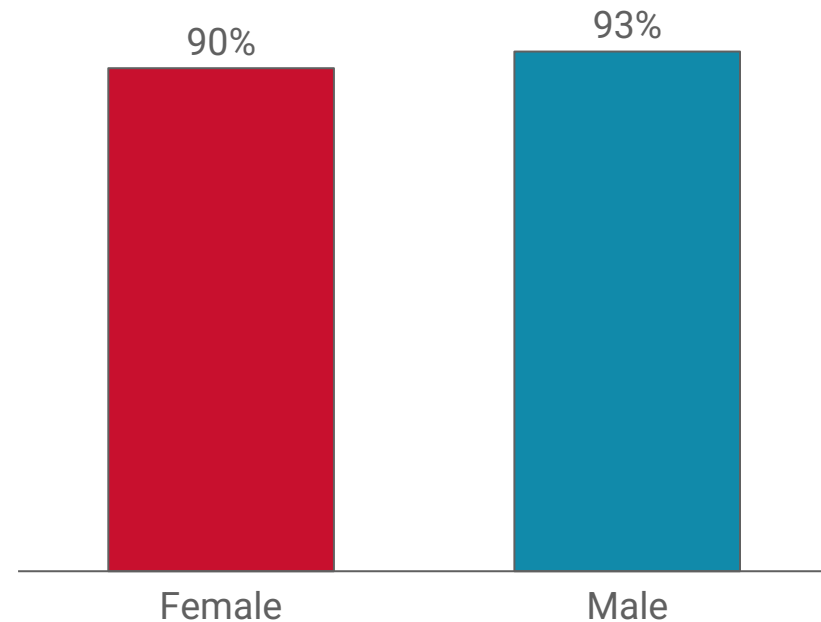


More than 90% of the SHFs have access to digital extension and advisory services; this is mainly through radio, TV and cellphone

- Even though the SHFs have access to digital extension and advisory services, non-digital extension approaches have remained dominant. Integrating face-to-face and digital methods can enhance inclusive scaling of extension services
- Radio commands the dispatch of digital extension and advisory services to the SHFs; this is attributed to the widespread of radio ownership among the SHFs than other digital devices
- Female and elderly farmers are more likely to report challenges associated with farming practices as opposed to their counterparts

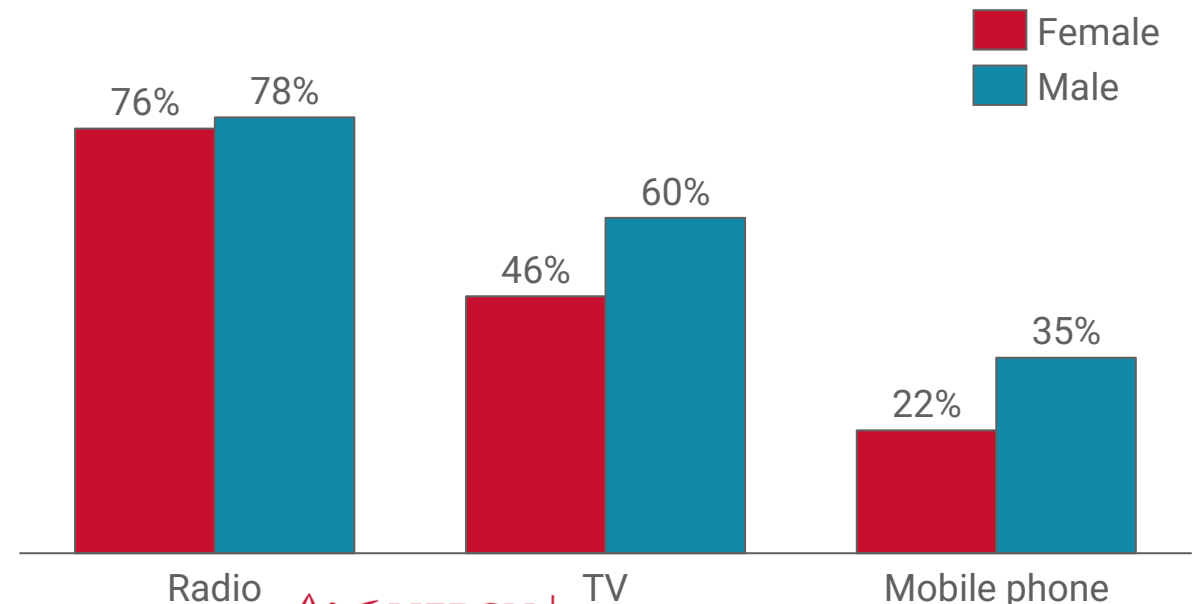
Access to digital extension and advisory services

% of SHF who access digital extension and advisory services



Access to digital extension and advisory services

% channels of extension and advisory services



SPARC



MERCY
CORPS

TV
AGRIFIN

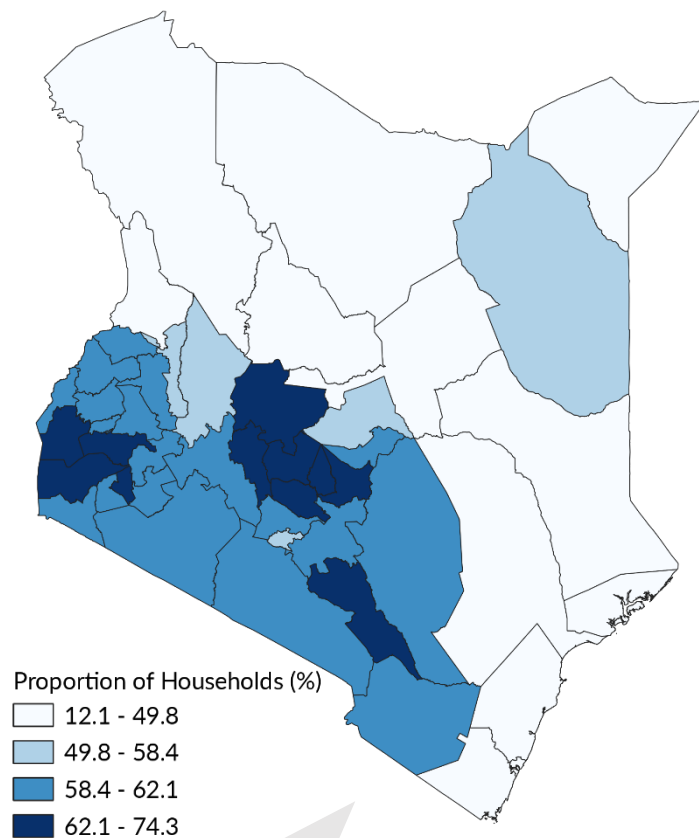
Dalberg Research

Source; Food and Agriculture Organization of the United Nations (FAO), HEP, 2021- Challenges And Capacity Gaps In Smallholder Access To Digital Extension and Advisory Services In Kenya And Uganda, n = 436

More than half of the households own a radio; western and central regions with highest concentration of SHFs have the highest proportions

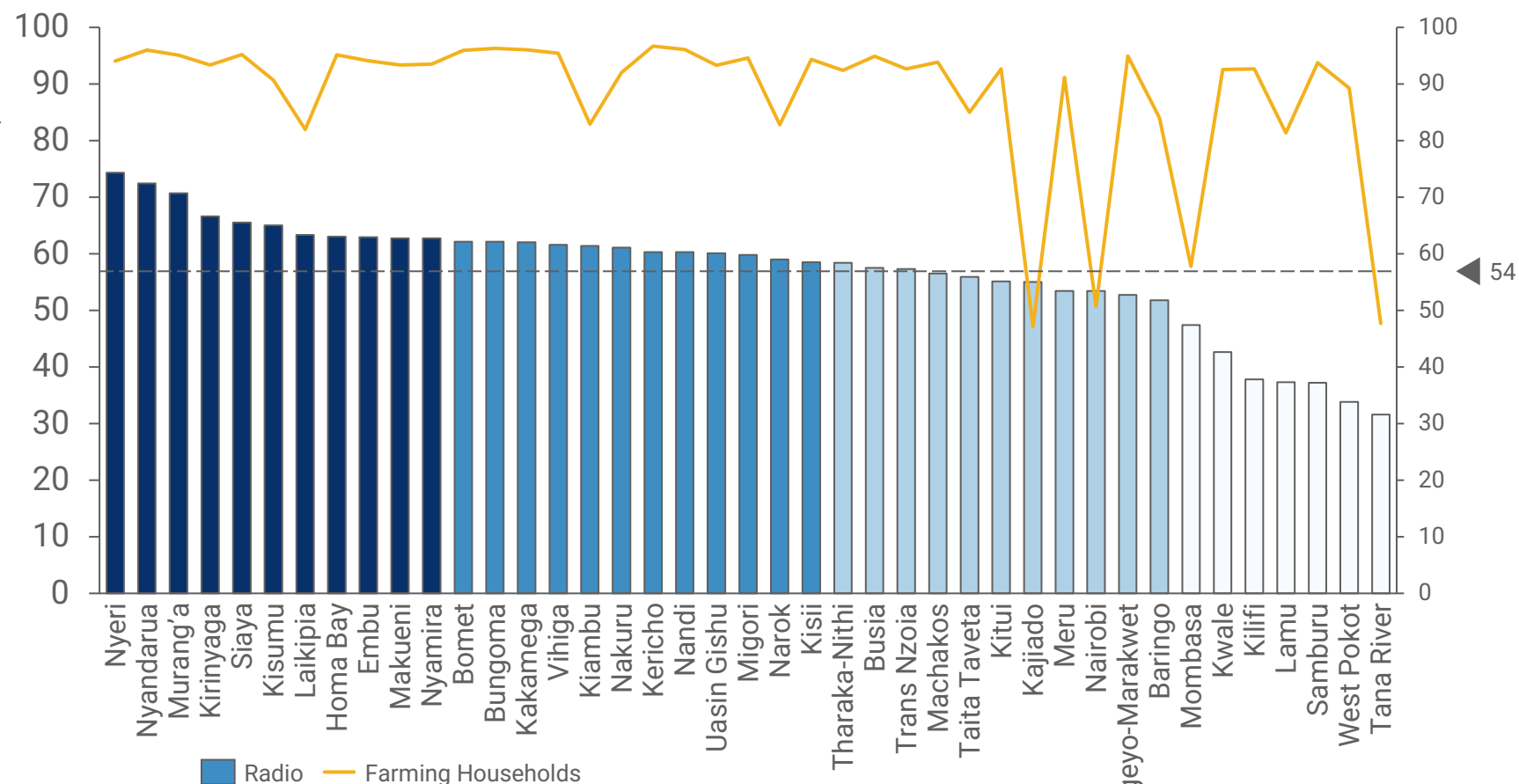
Radio ownership status

Stand alone radio



National Average:
54.5%

*Radio ownership status



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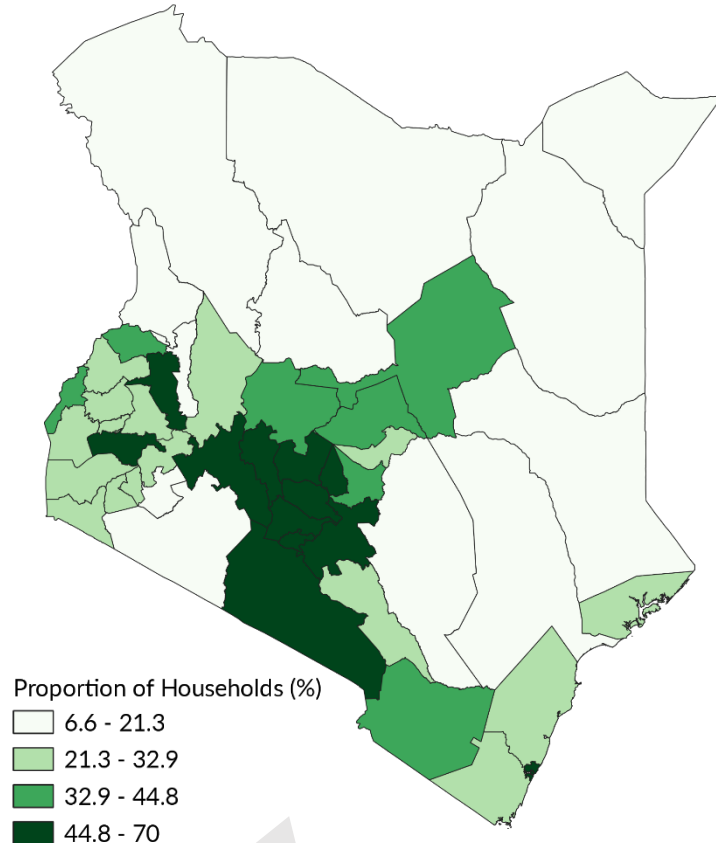
Notes: Wajir, Marsabit, Garissa, Isiolo, Turkana and Mandera counties were excluded due to low presence of farming households

Source: Kenya National Bureau of Statistics, Census 2019

Counties in the Northern region have limited access to a functional television

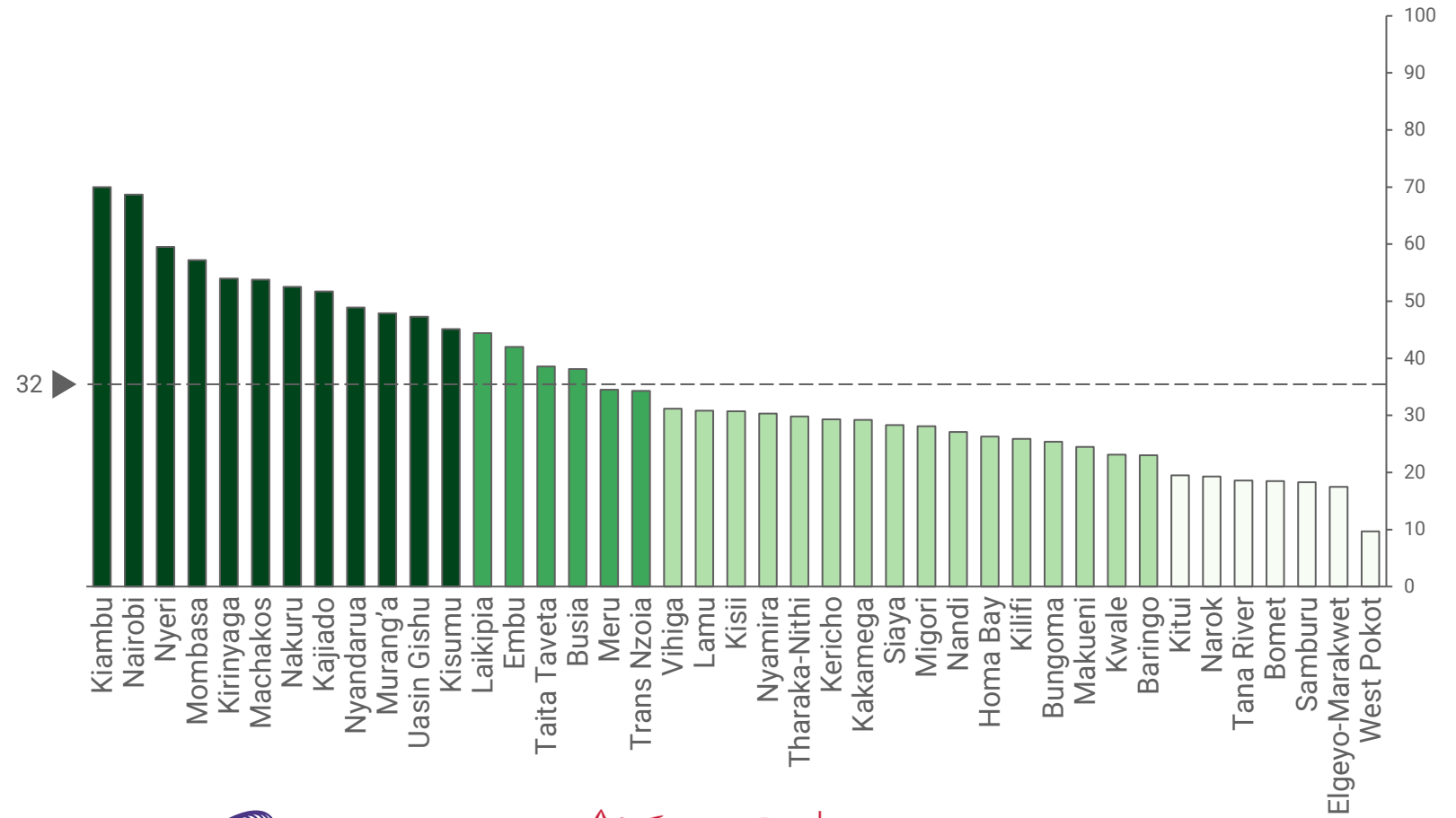
Television ownership status

Functional television



Television ownership status

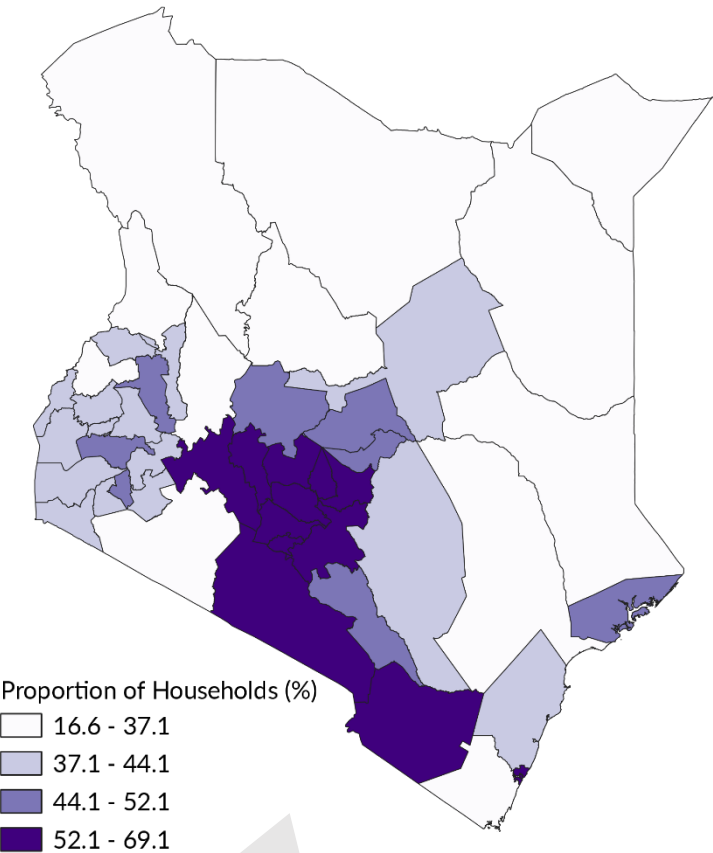
In proportions (%)



More than half of the counties are below the national average of cell phone ownership of 44%

Cell phone ownership status

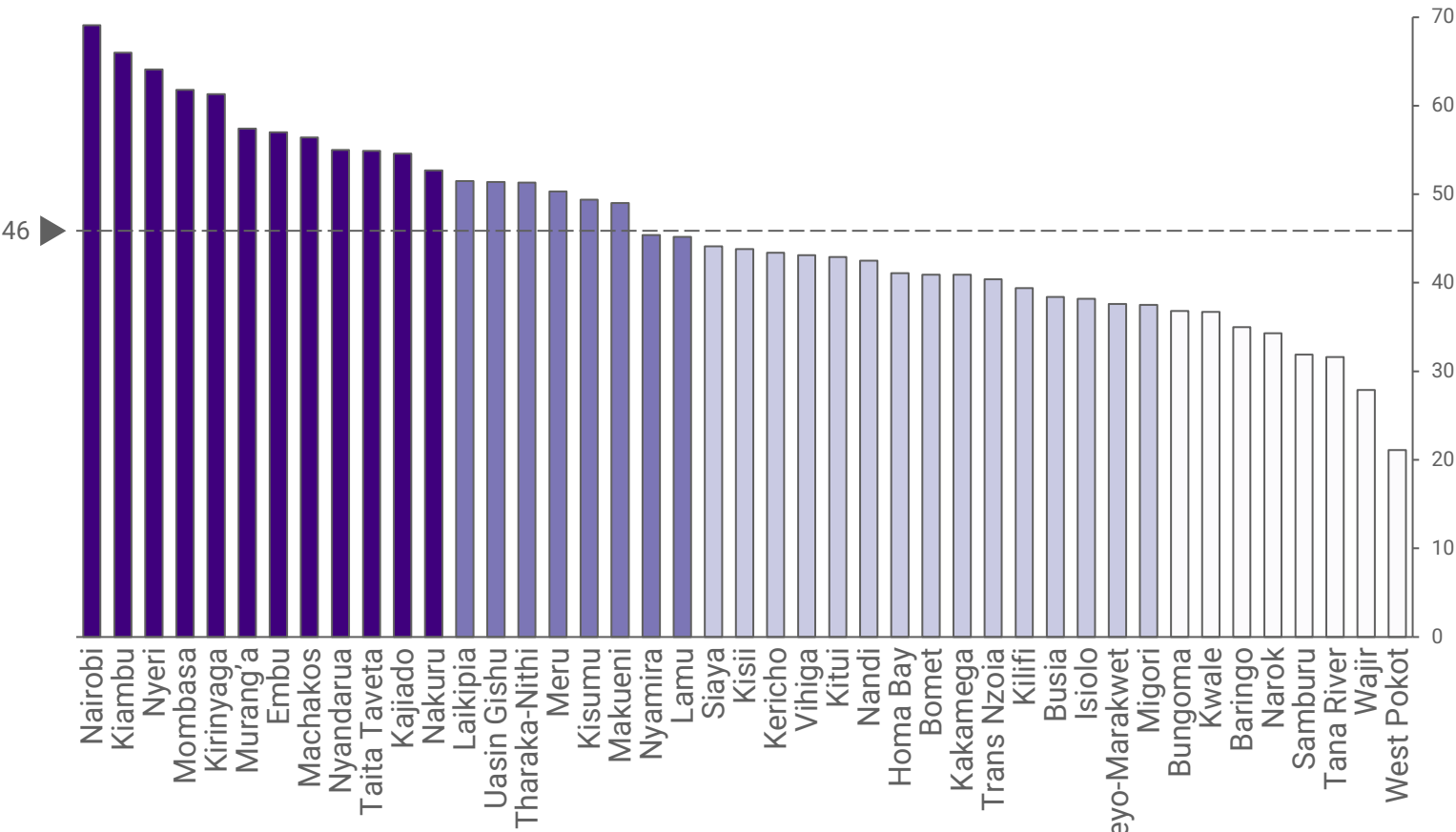
Both smart phones and feature phones



National Average:
44.1%

Cell phone ownership status

In proportions (%)

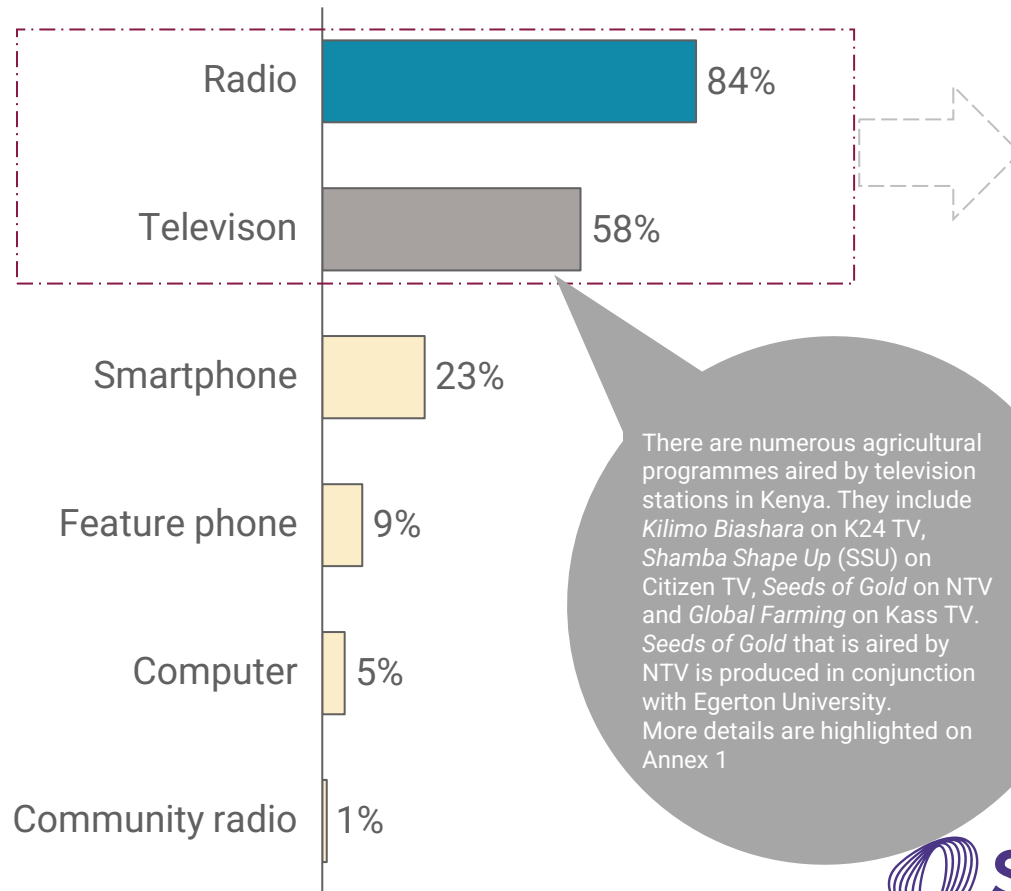


Notes: Wajir, Marsabit, Garissa, Isiolo, Turkana and Mandera counties were excluded due to low presence of farming households
Source: Kenya National Bureau of Statistics, Census 2019

Radio was the most prevalent digital device used by SHFs to access agricultural advice

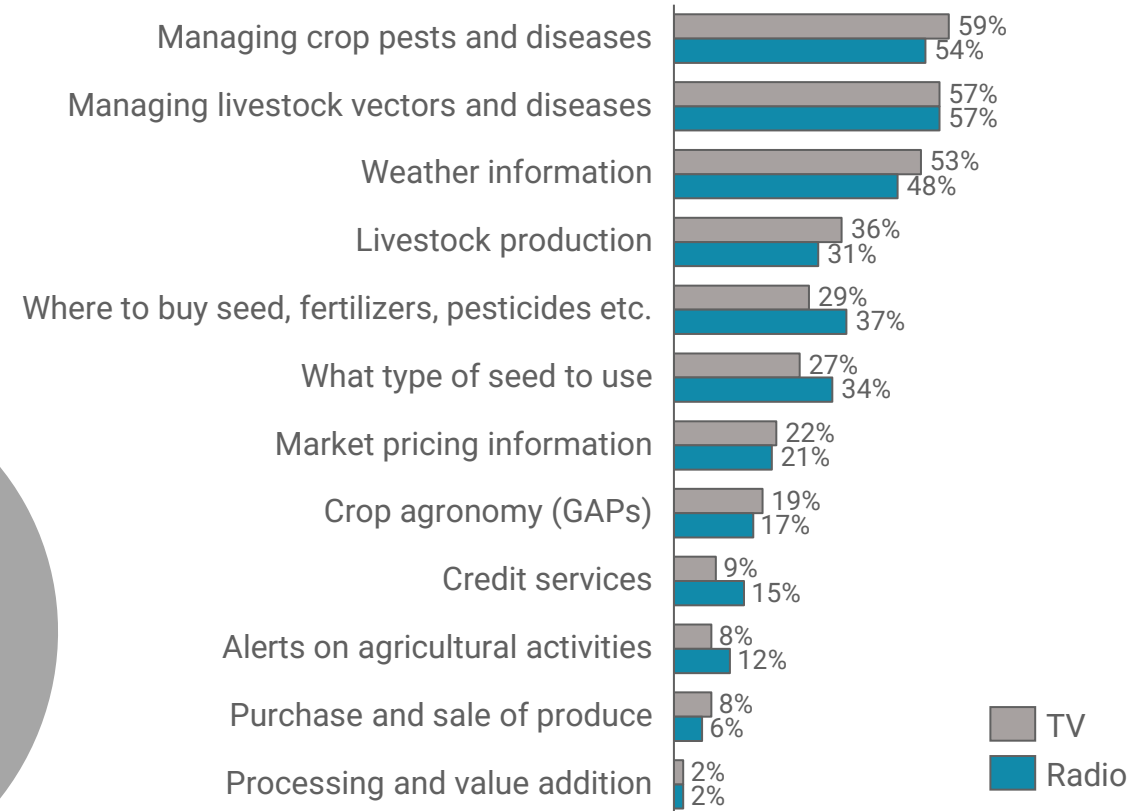
Sources of Agricultural Advice

% of SHFs who accessed agricultural advice through digital extension and devices



Type of information that SHFs sought

% of SHFs who seek specific type of agricultural information

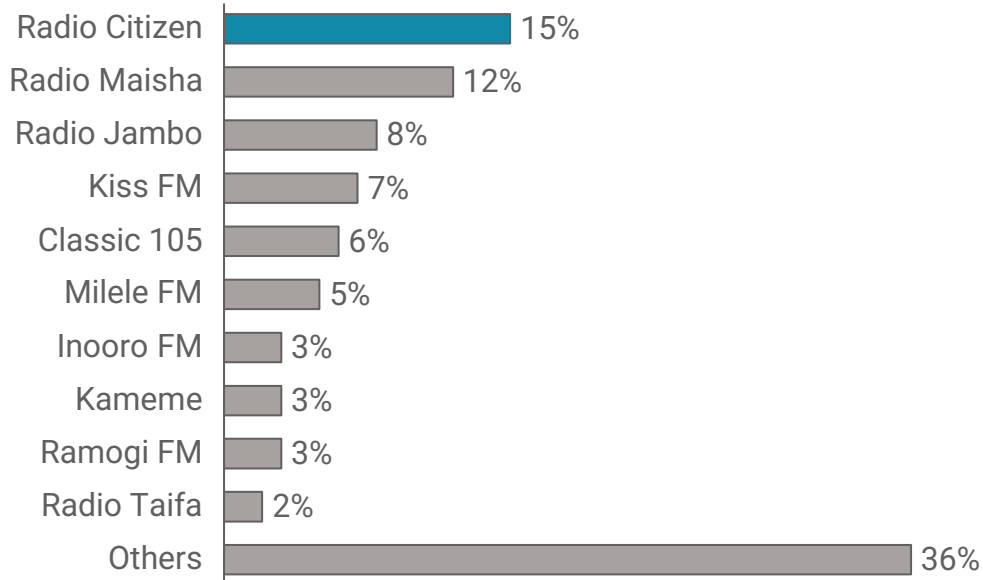


The Royal Media has the highest viewership and listenership; Citizen TV and Radio Citizen have largest audience share

- Radio Citizen is the highest rated radio station in Kenya, peaking between 6-8AM with an average rating of 5.1. Radio Maisha and Jambo follow closely behind in ratings. These ratings are subject to change and may vary based on various factors.
- Citizen TV is highly popular among TV viewers during peak hours, with the highest ratings occurring from 8.30PM to 9.30PM, averaging 9.1. There is close competition between KTN and NTV for second place in ratings.
- SHFs in Kenya likely have varied media consumption patterns based on factors such as location, age, education, and access to technology. Traditional media, such as radio and word of mouth, may be prevalent in rural areas, with limited access to television and the internet. However, improved access to technology may change this in the future.

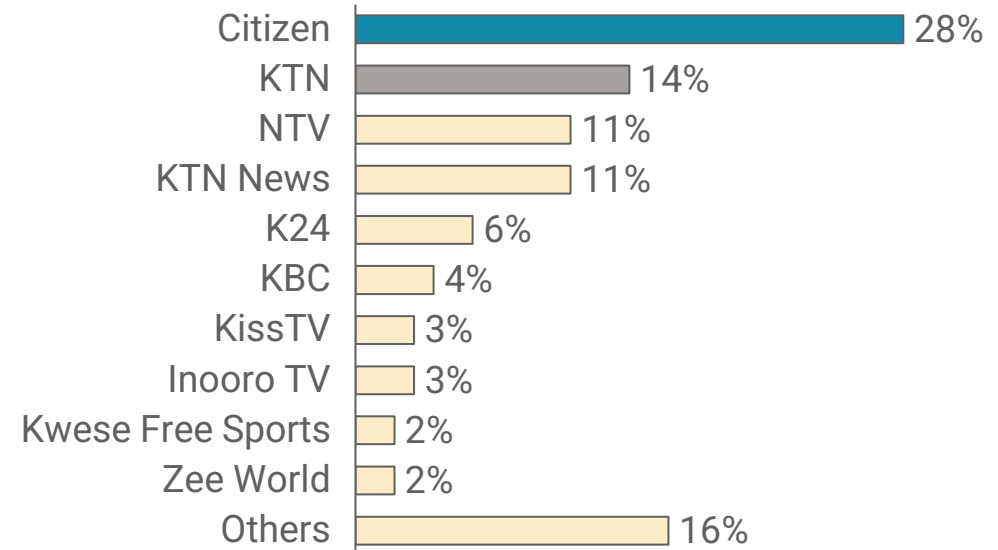
Radio audience

% of stations listened to



TV viewership

% of TV channels viewed



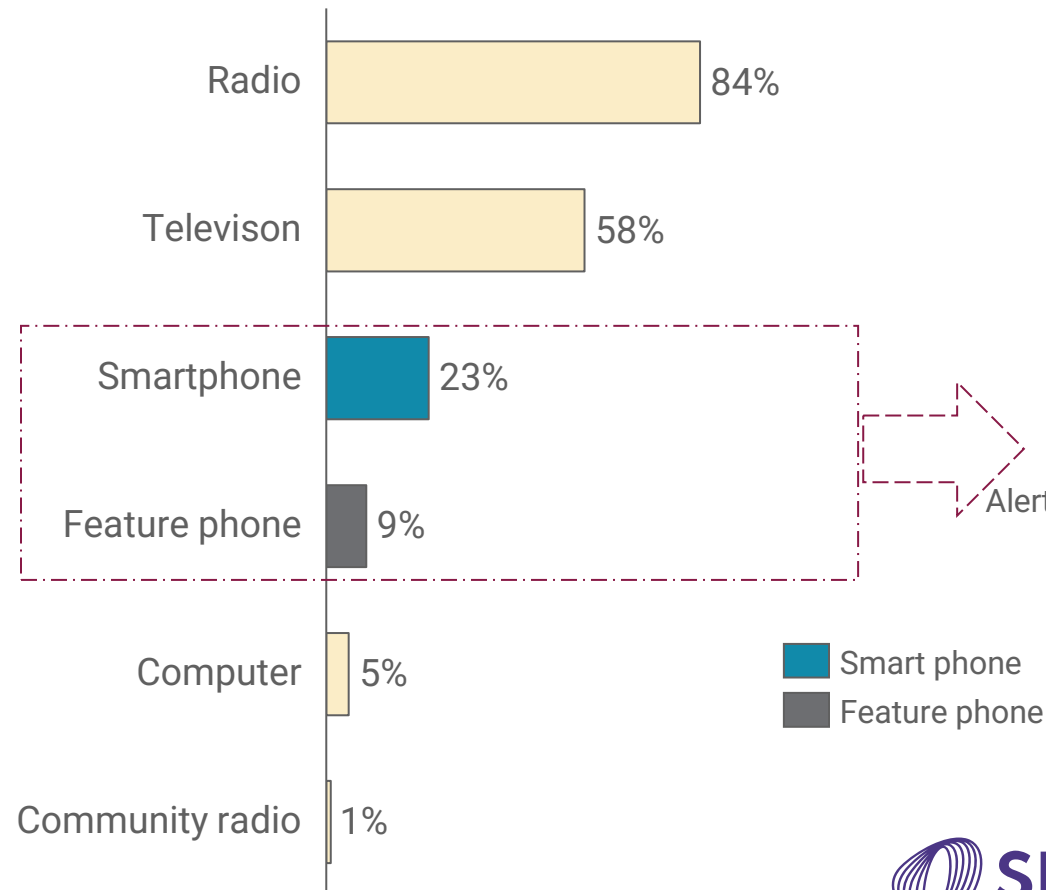
Source; Kenya Quarter 3 2017; Radio & TV Audience Ratings Report: [Kenya Media Measurement Q3 2017 Report \(geopoll.com\)](#); BBC: [Kenya-Media-Landscape-Report_BBC-Media-Action_November-2018v2.pdf \(communityengagementhub.org\)](#)

Notes: Royal Media owns 3 TV stations (Citizen TV, Inooro TV and Ramogi TV) and 14 radio stations (Radio Citizen, Inooro FM, Ramogi FM among other vernacular channels)

Managing crop pests and diseases is the most sought information through smartphones

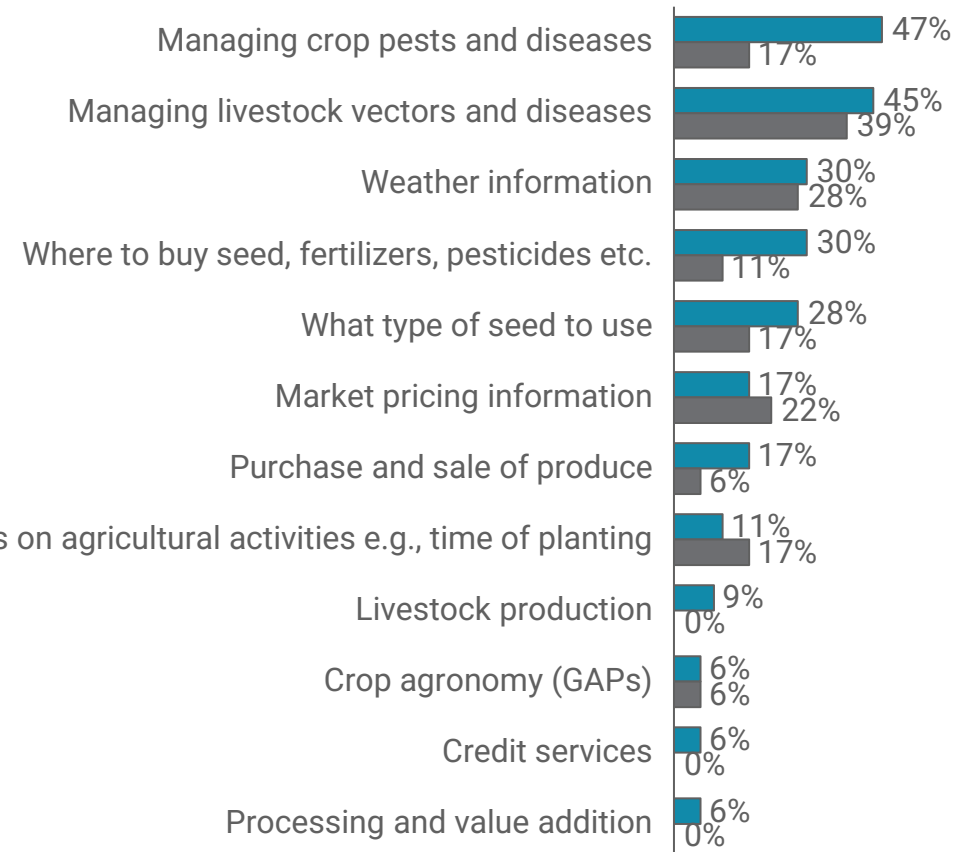
Sources of Agricultural Advice

% of SHFs who accessed agricultural advice through digital extension and devices



Type of information that SHFs sought

% of SHFs who seek specific type of agricultural information



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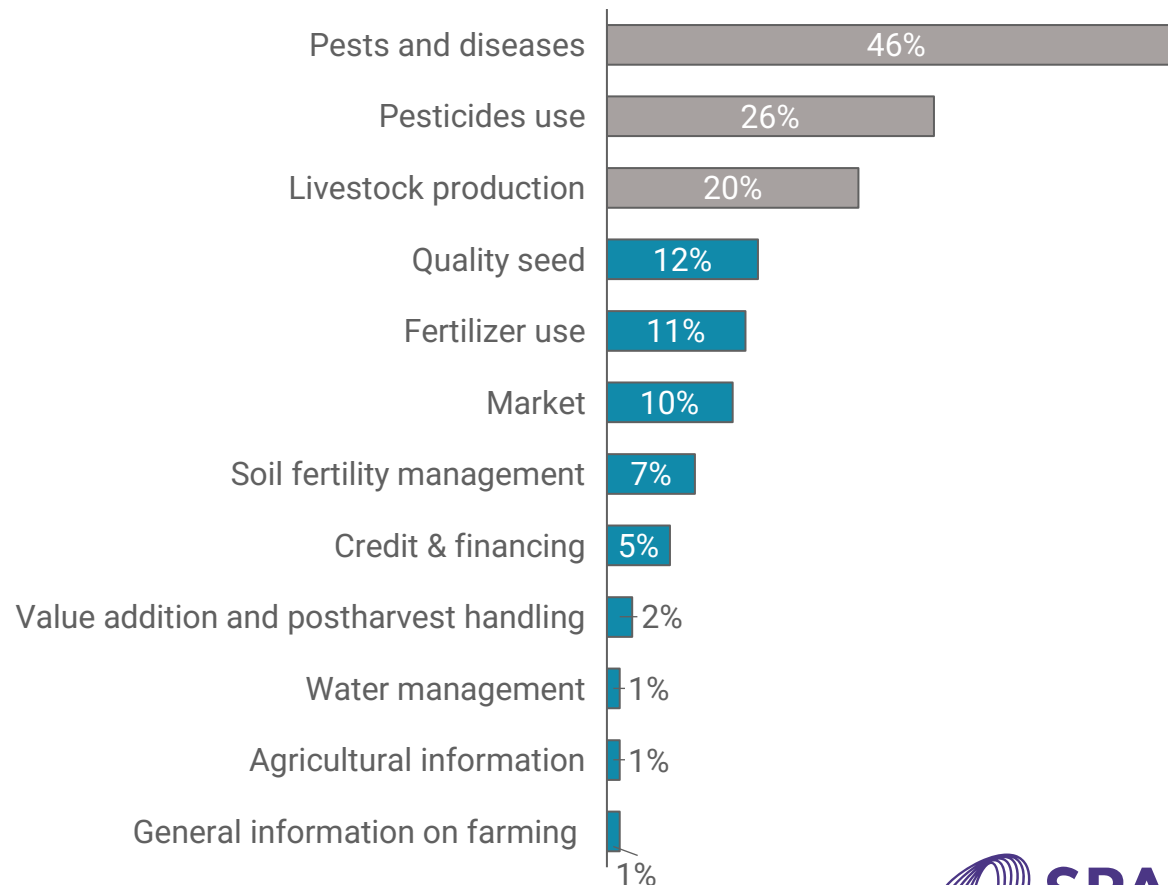
Dalberg Research

Source; Food and Agriculture Organization of the United Nations (FAO), HEP, 2021- Challenges And Capacity Gaps In Smallholder Access To Digital Extension And Advisory Services In Kenya And Uganda

As much as information on management of crop pests and diseases was the most sought, close to half of SHFs identified information gaps

Difficult information to be accessed by SHFs

% of SHFs by type of information



Farmers are struggling to get information on:-

Pest/disease identification, prevention, control practices and products - In particular, SHFs require information on how to identify and diagnose pests and diseases, how to distinguish diseases with similar symptoms, how to use biological pest and disease control methods, and the appropriate stage at which to control pests and diseases.

Handling and use of pesticides - Similarly, farmers expressed information gaps in recommended pesticides, when and how to spray, where to get quality pesticides, and safe use of pesticides.

Livestock production – the study identified knowledge gaps in general animal husbandry, diagnosis of livestock diseases, feeding dairy cattle, proper breeding, recommended vaccines (especially for poultry), control of livestock diseases, and how to maximize profits from livestock production.



Source; Food and Agriculture Organization of the United Nations (FAO), HEP, 2021 - Challenges And Capacity Gaps In Smallholder Access To Digital Extension And Advisory Services In Kenya And Uganda

In addition, information gaps that SHFs need addressed are highlighted below

Markets: information on market prices, how to access markets and where to get good markets

Fertilizer use: safe use of fertilizers, where to get affordable fertilizers, application rates, effective/recommended fertilizers, how to obtain subsidized fertilizers, how to make organic fertilizers and the types of fertilizer to use on different crops

Credit facilities: how/where to access credit facilities

Quality seed: best type of seed to grow in their area, where to obtain quality/certified seed, information on quality/certified seed, how to distinguish quality seed from 'fake' seed and best cultivars to plant

Soil fertility management: soil pH testing services, how to increase soil fertility, best soils for different crops and advice on soil conservation

Value addition: how to do value addition and processing of milk and fruits and postharvest storage

Water management: who can help in installation of piped water and how to deal with too much rainwater

General information on farming: landscaping, how to practice crop rotation, how to do organic farming, increasing production, spacing, how to increase yields, and weather



FACTORS HINDERING THE USAGE AND ACCESS OF DIS/DFS BY SHF

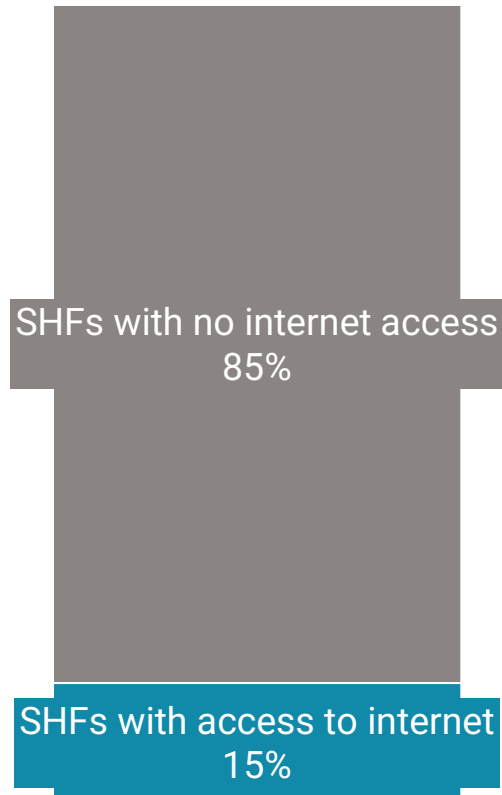


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Some of the barriers and capacity gaps for utilizing digital extension advisory support include ...

- Low digital literacy and prohibitive cost of internet and digital devices hampers the utilization of digital extension and advisory services
- Farmer Perceptions - These perceptions are shaped by farmers' personal characteristics (e.g., age, education, conservation attitude, norms beliefs) and the physical characteristics of the land.
- Some of the listed challenges to utilization of extension advisory support are as shown below:



Low awareness of digital services availability



Lack of access to affordable internet services



Limited technical support to use digital services



Low digital literacy levels



Lack of ownership and control of digital devices



Additionally, various studies have cited factors hindering the adoption and utilization of DIS/DFS by the farmer



Lack of trust and awareness: Farmers in Kenya often do not trust digital services and may not be aware of their benefits. This is often due to a lack of education and understanding about the technology.¹



Data privacy and security concerns: Farmers in Kenya may be concerned about the security and privacy of their personal and financial data, leading them to avoid using DIS/DFS.³



Financial and economic constraints: The small-scale farmers in Kenya may not have the financial means to purchase the technology needed to access DIS/DFS, such as smartphones, and may not have access to financial services to pay for these services.¹



Limited digital literacy: many farmers in Kenya may not have the necessary digital skills to effectively use DIS/DFS and may require additional training and support.⁴



Inadequate infrastructure: In many rural areas of Kenya, there is a lack of infrastructure, including lack of electricity and internet access, which can limit the use of DIS/DFS.²





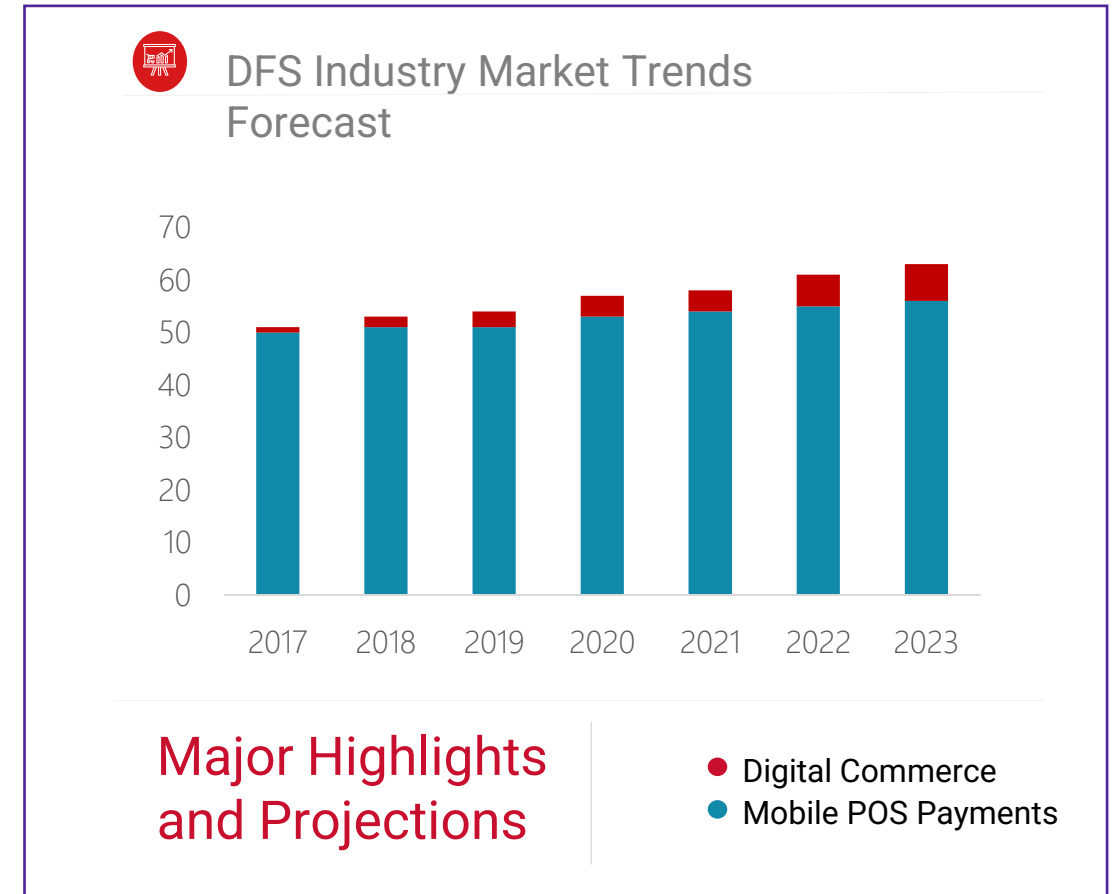
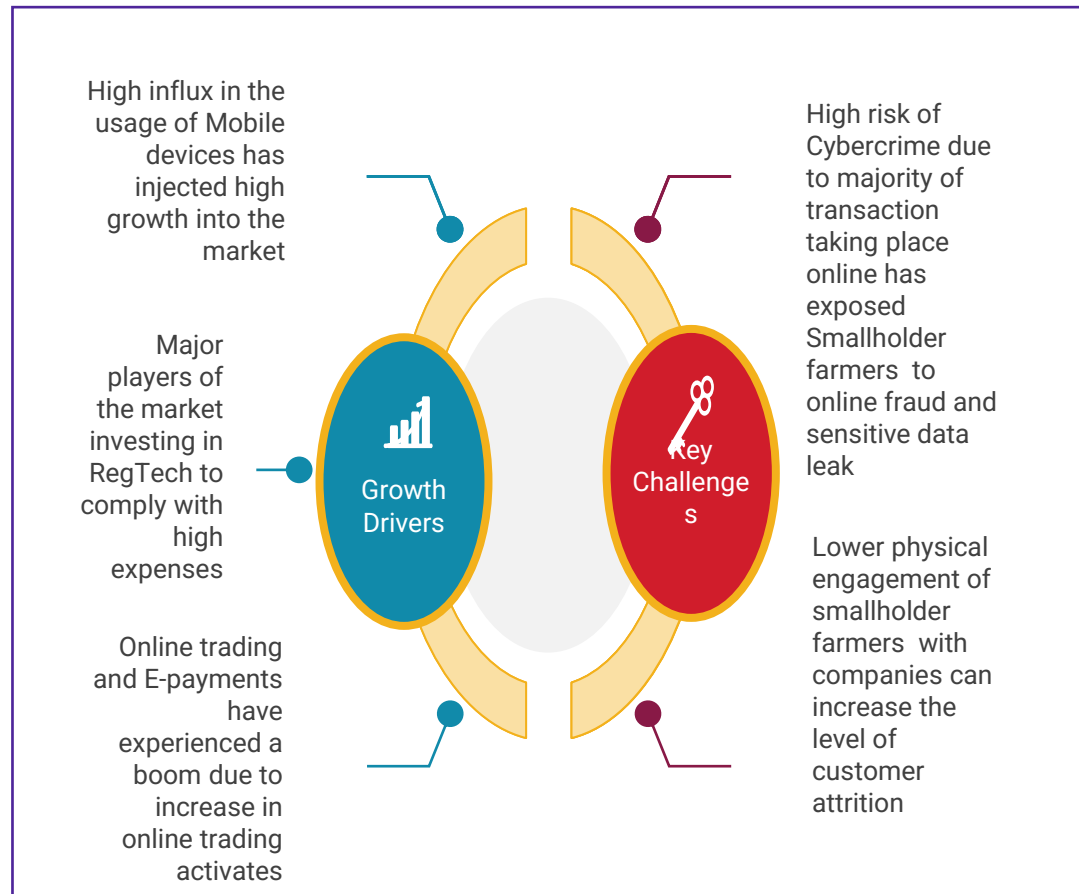
OPPORTUNITIES OF INCREASING SHFS INCOME THROUGH DIGITAL FINANCIAL AND INFORMATION SERVICES



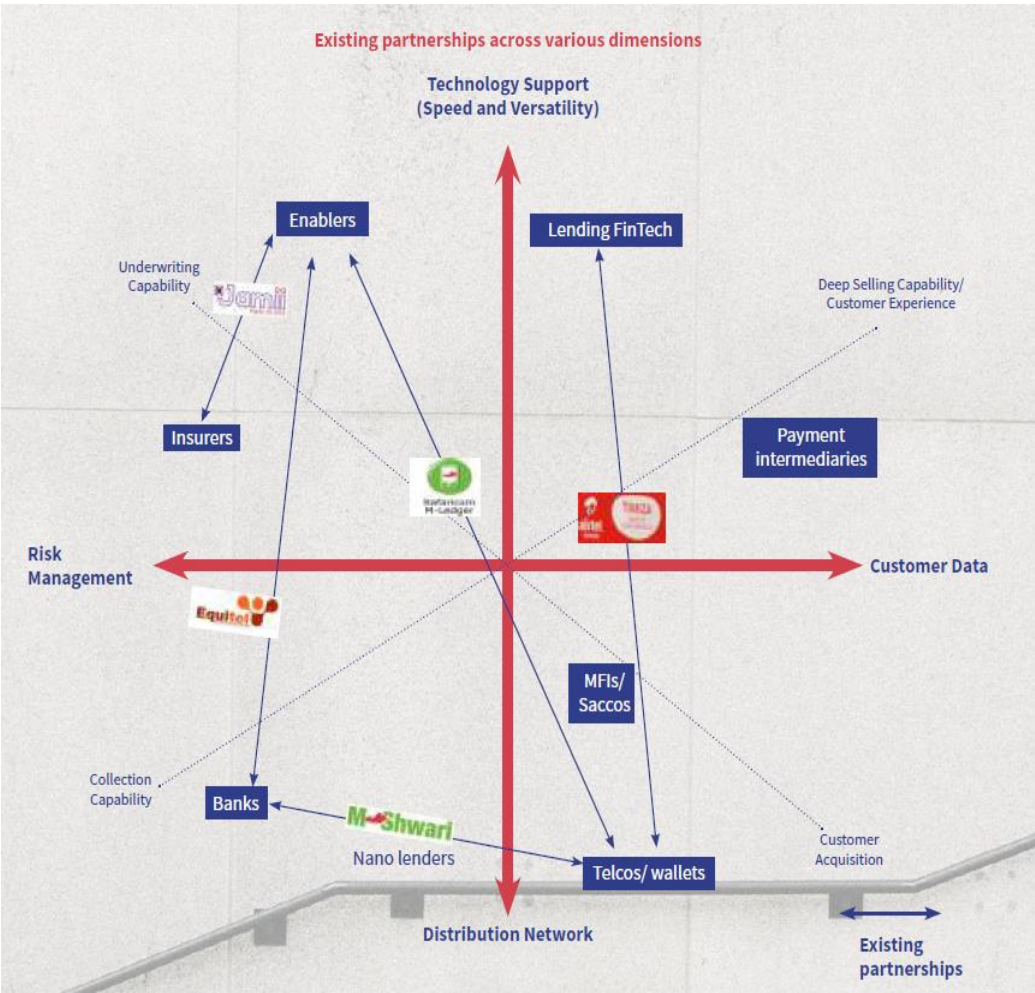
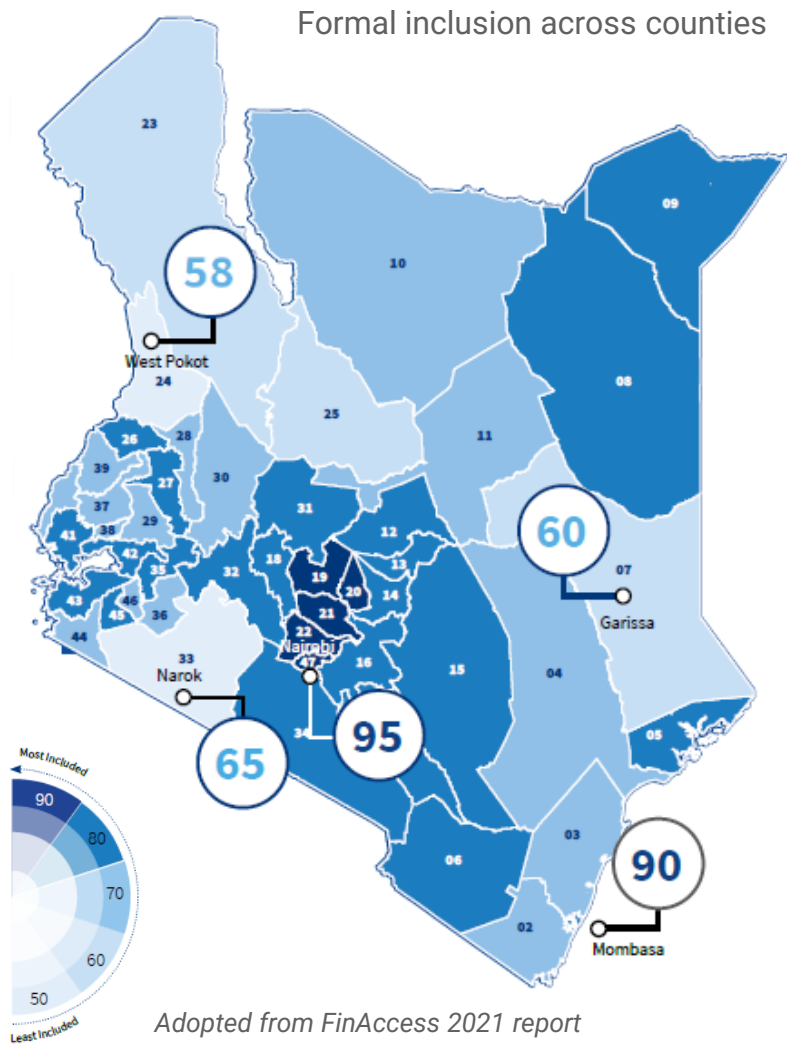
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Globally according to Fintech report 2016, some of key market growth drivers and challenges of DFS are ...



While in Kenya, counties have varied access to formal financial services; the formal channels seem to care more about risk management and distribution network



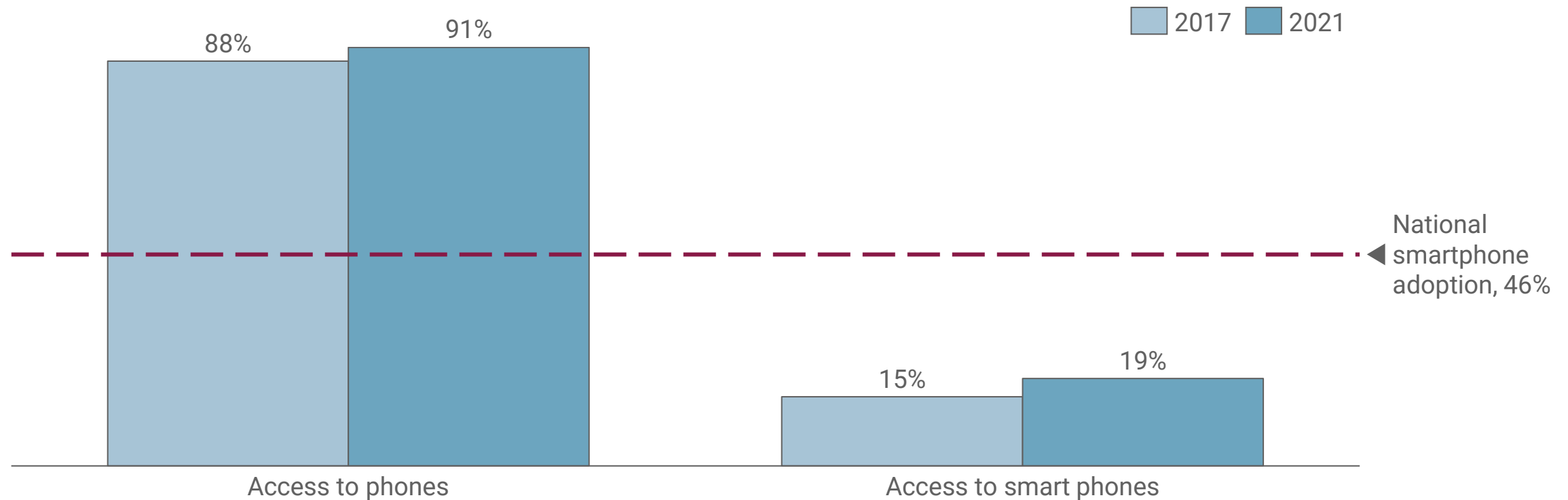
Source; How Kenyan counties access to formal financial services- (Finaccess household survey 2021), Existing partnership across various dimensions from the [FinTrek report 2020](#)

While recently in Kenya, an increase in SHFs access to phones has been observed presenting an opportunity in digitally access to agricultural information

- Around 91% of SHFs access cellphones (borrowed or owned) and 19% to smartphone compared to 46% national average.
- SHFs can benefit from phone (basic or smartphone) through sending SMS text reminders to plant, fertilize, weed. This can improve take-up of extension information. According to a study by World Bank SMS reminders increased yields by 11.5%.

SHFs access to phones and smartphones (n = 5308)

% of SHFs with access to phone and smartphones



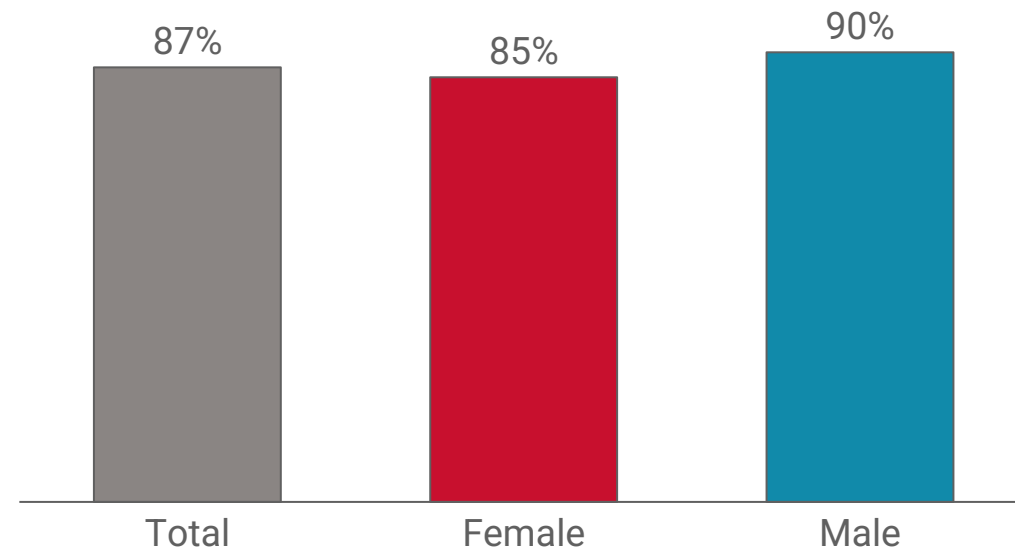
Dalberg Research

Mobile money usage among SHFs can be leveraged to increase access to financial services through multiple platforms

- The multiple platforms include mobile banking, digital wallets, microfinance platforms, digital marketplaces and E-commerce platforms
- Mobile money usage among females is slightly lower compared to males
- Mobile money uptake is similar for SHFs between 16 and 54 but decreases from 55+ years

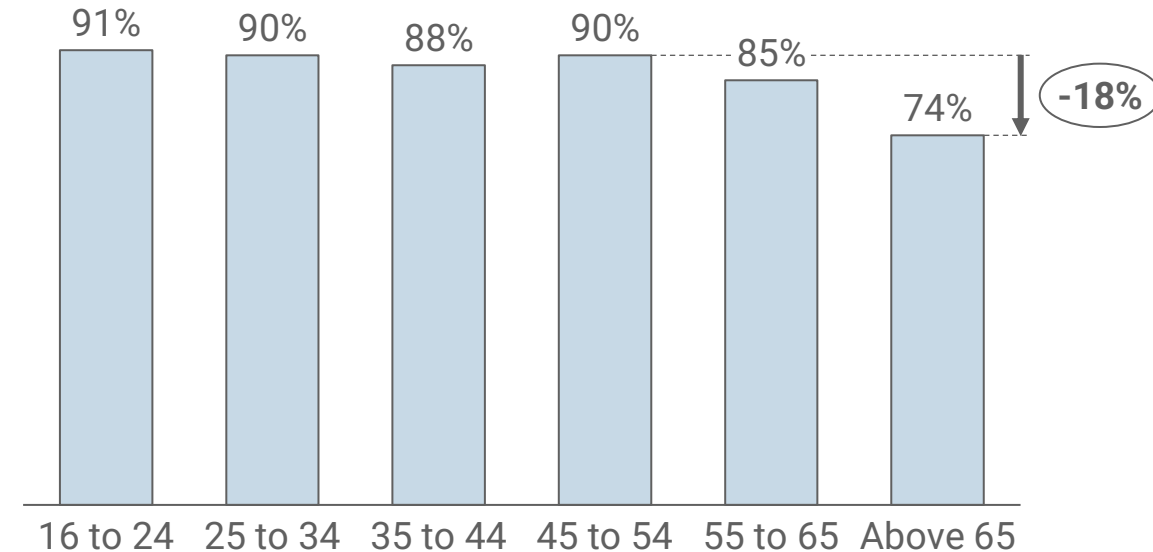
Mobile money usage by gender (n=2005)

% SHFs who use mobile money by gender



Mobile money usage by age (n=2005)

% SHFs who use mobile money by age



A study by GSMA highlights how Index insurance services have utilized mobile and satellite technology over the past decade to digitalize their operations and increase scalability. Therefore, Mobile network operators can use technology to register farmers, track their locations, and handle premium collection and claim payments through mobile money. This is because SHFs are turning to index insurance to mitigate crop or livestock losses. This will in turn cushion more SHFs against such shocks¹.

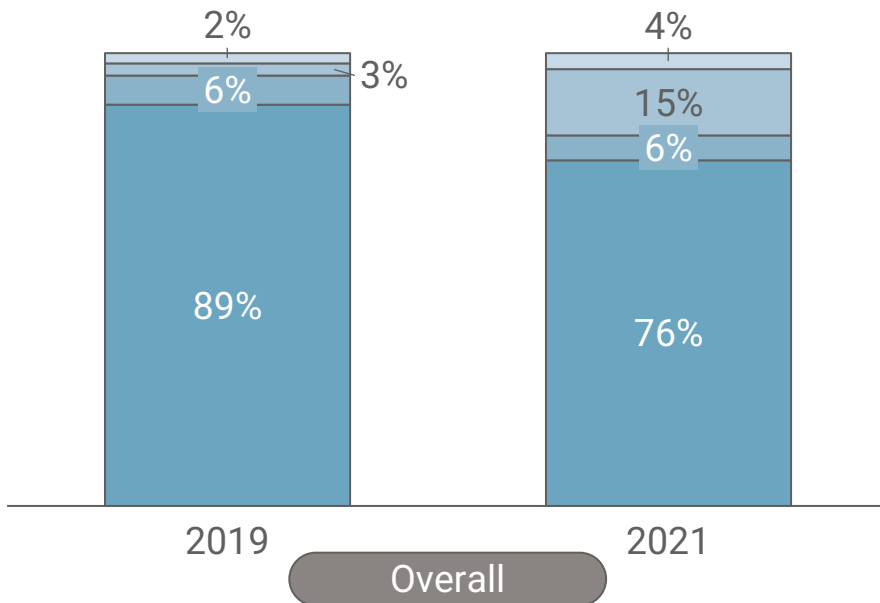


SHFs utilization of mobile money to receive farm related payments grew by more than 4x between 2019 and 2021

- Mobile money transaction (receiving and paying) grew significantly in 2021; this can be attributed to COVID-19 policy incentives around lowering transfer costs. Cash transactions remain high.
- Cash payments deny farmers and agricultural produce buyers the opportunity to generate bankable data that can support FSPs in their credit underwriting.

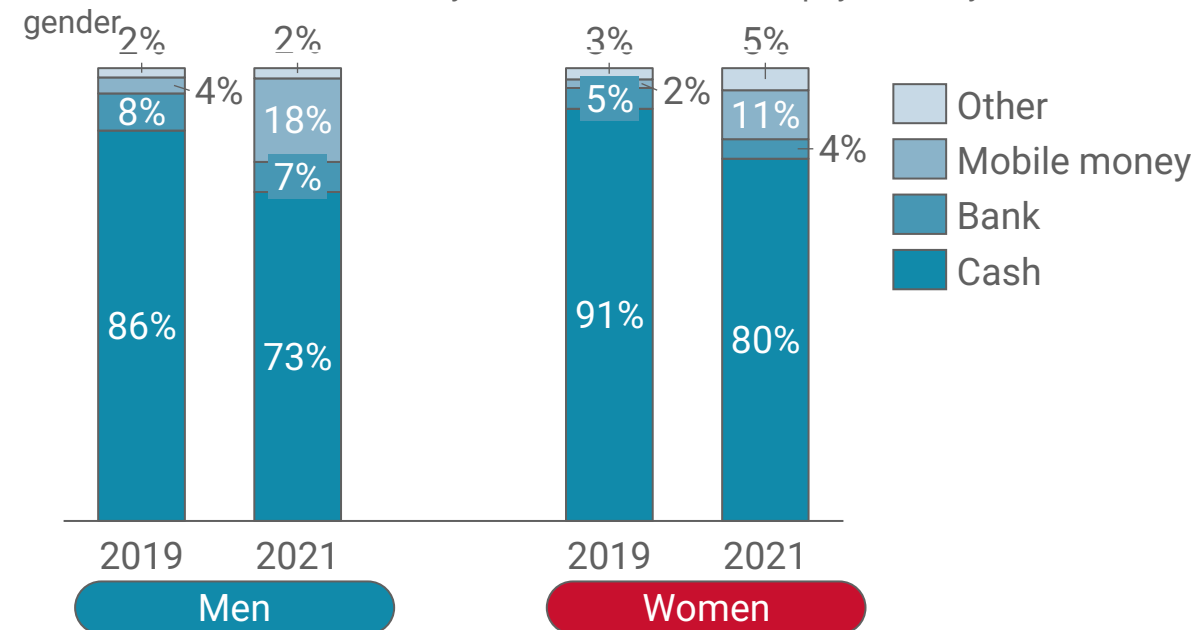
Mobile money usage to receive farm related payments (n= 5308)

% SHFs who use mobile money to receive farm related payments



Mobile money usage to receive farm related payments by gender (n= 5308)

% SHFs who use mobile money to receive farm related payments by gender

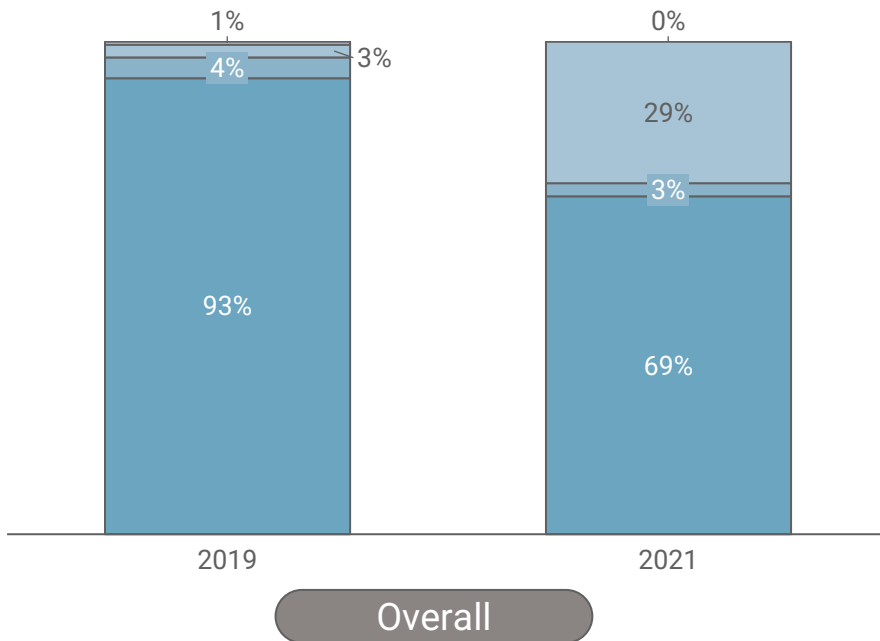


This information can be used to create economic identities for SHFs through credit scores that will act as enablers to access finances

- Use of mobile money to make farm related payments increased significantly in 2021 by over 1000% to 29% with cash payments reducing by 24% to 69%.
- Making farm related payments through mobile money grew by more than 8x between 2019 and 2021
- Among women, the use of bank for payment increased marginally compared to the men who reported a reduction

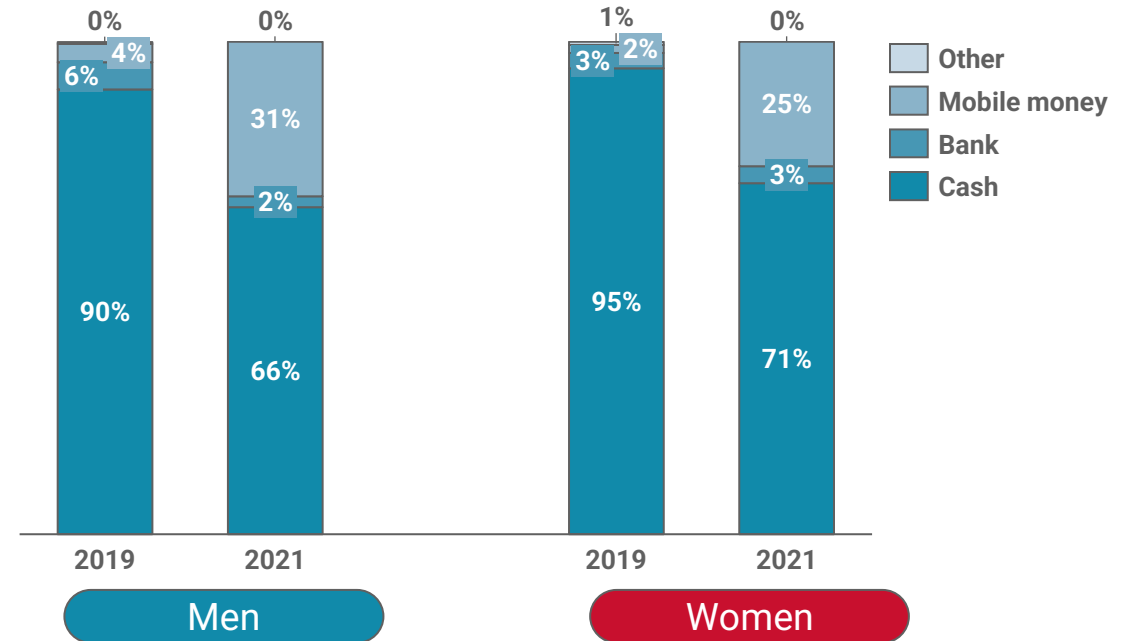
Mobile money usage to make farm related payments

% SHFs who use mobile money to make farm related payments



Mobile money usage to receive farm related payments by gender

% SHFs who use mobile money to make farm related payments



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Source; FSD, Agriculture-and-Processing-Financing-Market-Analysis (2021).

Notes; The payments mentioned are on how SHFs agricultural households make farm related payments

CONSTRAINTS TO SHFs INCREASED PRODUCTIVITY



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Factors that hinder SHFs optimum productivity range from population pressures to lack of timely and accurate market information



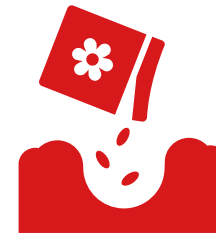
Land and population pressures: Average farm size is falling, and land distribution is becoming more concentrated, leading to significant constraints on production, particularly for smallholders.



Climate change: Changes in temperature and in the variability of rainfall are likely to have significant effects on agricultural production, impacts may be different for different crops.



Agricultural research and development and agricultural extension: The proportion of farmers accessing extension advice is low, while extension services tend to favour wealthier farmers. Government spending on agricultural research has fallen steadily over the past decade.



Soil fertility and land degradation: Adoption of sustainable land management practices is low, and land degradation is increasing.



Markets: While physical access to markets has generally improved, farmers report a number of institutional barriers and transaction costs related to market information and marketing processes. Access to credit is a constraint across the sector.



Public expenditure: Kenya is not meeting the African Union commitments on public spending in agriculture. Its subsidy schemes are regressive and distortionary



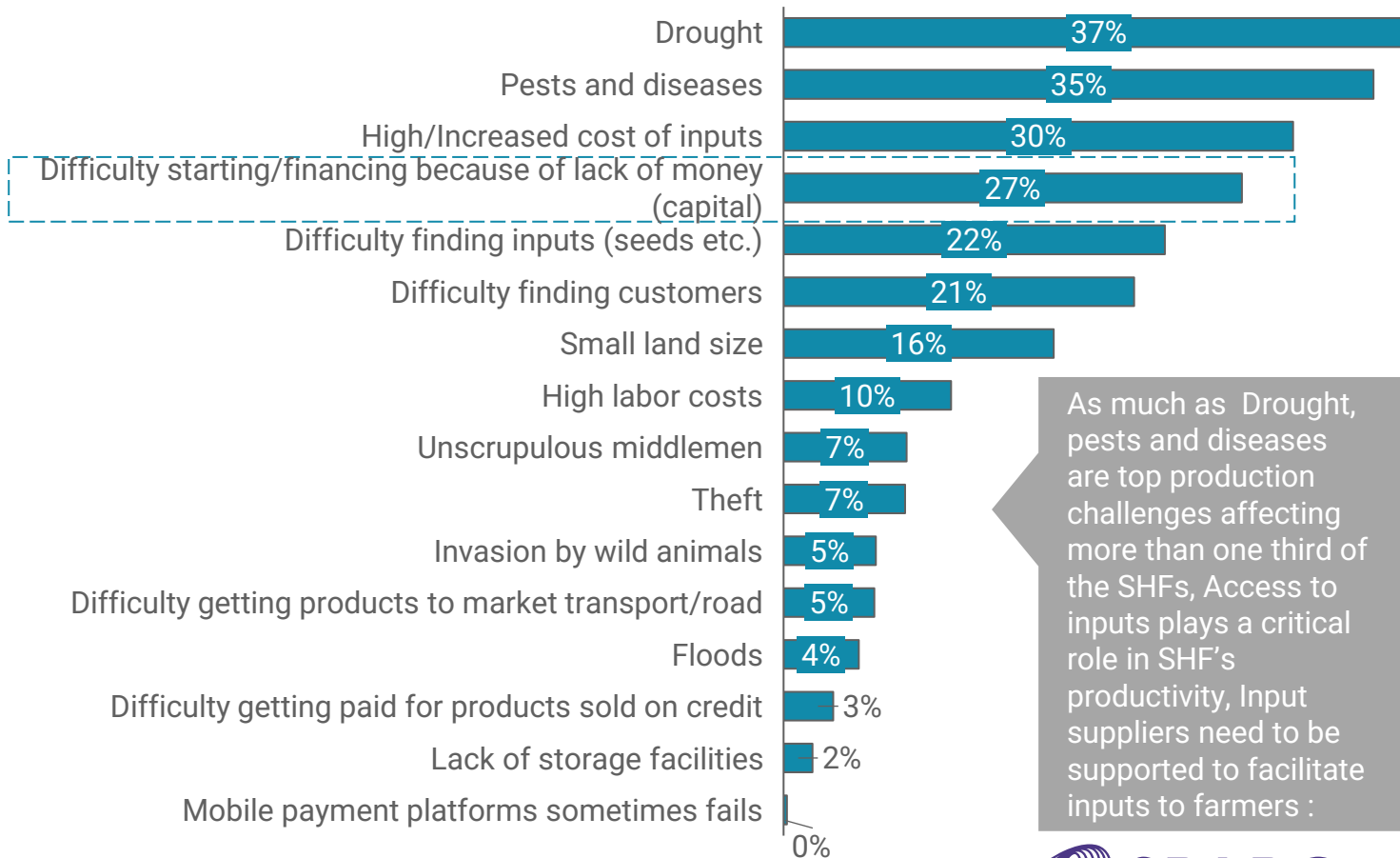
Source; K4D, Agricultural productivity in Kenya: barriers and opportunities, 2018

Notes; Agricultural extension is the application of scientific research and knowledge to agricultural practices through farmer education

Drought, pests and diseases are top production challenges affecting more than one third of the SHFs

Challenges farmers faced in 2021

% SHFs who faced various production challenges



❖ Whereas more than a quarter of SHFs recognise **lack of capital** as a challenge, lack of finance leads to most of the challenges listed below. Lack of capital inhibits access to chemicals to control pests and diseases, finding seeds, accessing land, access water for irrigation among others.

❖ Inputs procurement for majority of smallholder farmers is usually done through last mile agro-dealers who are part of a **long supply chain which increases cost of goods**.



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However, GoK recognizes the financing gap in agriculture; its flagship Agri finance programs include fertilizer subsidies

GoK priorities

Policy initiatives

Input subsidies for smallholder farmers

- ❖ GoK has for many years provided subsidies to maize farmers for fertilizers (approximately 5B KES / year in 2019) – this has led to increased kg/ hectare fertilizer use of 40% in the past decade. However, simultaneously maize yields have declined – likely as a result of fertilizer over-use driving down pH levels in the soil (soil acidity). The subsidy scheme has also distorted the market and led to uncompetitive practices.
- ❖ E-voucher subsidy: The ASTGS strategy sets out plans to shift the subsidies so that they are (I) digitized as e-vouchers and directly redeemable by farmers to avoid middlemen, leakage, and price distortion and (II) give farmers ability to choose appropriate inputs to match their soil needs.

Supporting crop and livestock insurance

- ❖ MoA is currently in consultative process on the National Agricultural Insurance Policy – a policy document that sets out the GoK priorities and objectives for agri-insurance.
- ❖ The draft policy includes commitment on part of national and county governments to facilitate the use of agricultural data for use in insurance data models. It also includes a softly worded commitment to create incentives for microinsurance firms providing cover to smallholder farmers.



Source; FSD, Agriculture-and-Processing-Financing-Market-Analysis (2021) – Challenges farmers faced in 2021
FSD, Agriculture Processing Landscape Report; Stakeholder interviews; desk analysis; Kenya Agriculture Sector Transformation and Growth Strategy; Ministry of Agriculture (MoA), Livestock and Fisheries website; Agriculture Mechanization Bill 2021

Other players like agribusinesses and intermediaries have stepped in to provide smallholder financing, but they face their own struggles

Some intermediaries / agribusinesses of various sizes (e.g., DigiFarm / iProcure, One Acre Fund, Apollo Agriculture) provide financing directly to smallholder farmers, unlike banks. But they encounter **four** significant challenges that hamper their growth:

- ❖ **High administrative costs:** Engaging with smallholder farmers directly requires a foot-based field force, which is costly to establish and grow
- ❖ **Reticence from banks to partner:** Capital constraints for growth are a major challenge. Banks are less keen to provide the capital for onward lending to farmers, so some of these organizations have no choice but to lend from their own balance sheets. The capital would come from development actors or private investors, with long timelines to secure. One Acre Fund is the largest in Kenya with USD c.50M loan book
- ❖ **Long farmer repayment cycles:** Depending on the value chain, farmers may require upwards of a year to repay their loans, which are already at small ticket sizes. This ties up significant working capital for the lending institutions / these agribusinesses
- ❖ **Below-market returns on loans:** Low farmer ability to pay fundamentally means that interest rates cannot be anywhere near market levels. While these smallholder farmer loans do perform very well (i.e., single-digit NPLs), not only are they expensive to administer, but the organizations can only target cost-recovery, not profit. 2020 saw the winding up of several Ag fintech players (e.g., Tula, FarmDrive) for these exact reasons.



Also, GoK has highlighted priorities around climate smart agriculture and enhancing smallholder resilience to climate shocks

Climate risk

National strategies and priorities

Changes in temperature regimes and rainfall patterns

- Provision of accurate, timely and reliable climate/weather information to inform decisions of actors on crops, livestock and fisheries value chains
- Promotion of crop varieties, livestock and fish breeds and tree species that are adapted to varied weather conditions and tolerant to associated emerging pests and diseases
- Diversification of enterprises and alternative livelihoods - this includes incorporation of integrated farming and pastoral production systems based on agro-ecological zones and priorities
- Enhancement of productivity and profitability of agricultural enterprises - this entails promotion of use of improved technologies and post-harvest approaches such as improved storage, cold chain, and distribution of agricultural products

Extreme weather events and shocks (e.g., drought, storms, floods, etc.)

- Development and implementation strategies for early warning and response, and ensure preparedness for extreme weather events, including use of digital platforms and geospatial data
- Promotion of index based agricultural insurance products for both crops and livestock producers that cover weather-related losses and shortfalls in output

Unsustainable natural resource management (water, soil, forests)

- Promotion of sustainable management and utilization of natural resources: soil nutrient management, soil and water conservation, conservation agriculture; restoration of degraded soils and conservation of soil biodiversity; protection of riparian reserves, fish landing stations, wildlife corridors and stock routes
- Promotion of water harvesting and storage for irrigation of crops, aquaculture, livestock watering and agroforestry
- Development of appropriate irrigation infrastructure and technologies, including waste-water management
- Promotion of conservation and propagation of germplasm of species with adaptive capacity

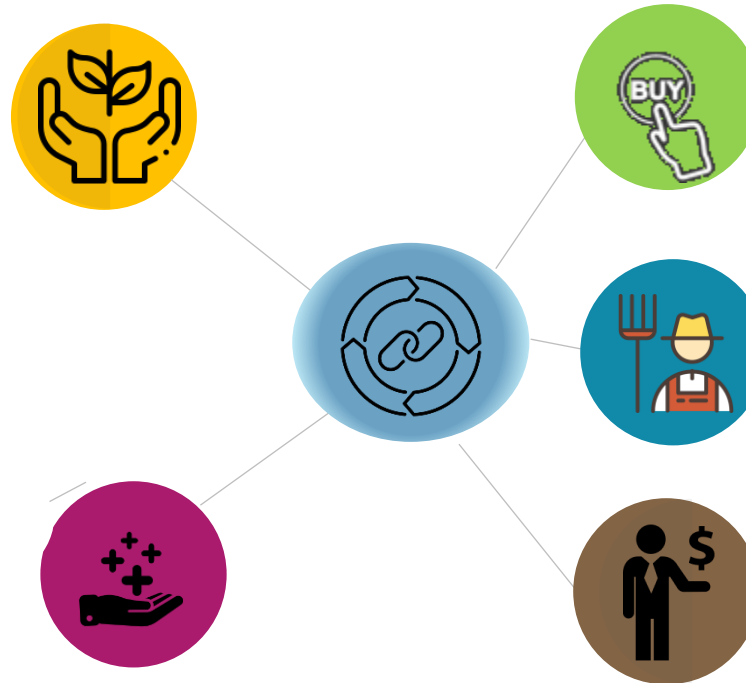


Source: Kenya Climate Smart Agriculture Strategy 2017-2026; Kenya National Adaptation Plan 2015-2030; Kenya Agriculture Sector Transformation and Growth Strategy
Notes: The implementation of Kenya's Climate Smart Agriculture plan is estimated to require a total of KES 500B investment for both adaptation and mitigation actions up to 2026. Progress to date on this plan is limited, and it is not clear how the plan will be funded.

While the value chain actors play significant role in resolving SHF's productivity constraints

Value chains in Kenya show a large variation in terms of size, geographical distribution, degree of licensing, relative rewards, quality perceptions and long-term potential. A number of critical issues affecting each point in the value chain and moderating future impact are described below

- **Business enabling environment in counties :** Kenya has one of the most developed networks of public and private research institutions in Africa, with several public and donor-funded national and multinational research programs. Critical to their future contribution will be speeding up knowledge transfer to smallholders, particularly in promoting the adoption of good agricultural practices, inputs appropriate for different ecological conditions. This will require stronger extension and training services, whose provision remains woefully inadequate with less than one third of farmers accessing any form of extension services in all the counties.
- **Value Addition and aggregation** have emerged as important business hubs for producers, minimizing the cost of collecting products from small, scattered producers by the major processing firms. For instance, in the dairy sector, while there is currently an estimated 200 chilling plants in the country, poor management and a lack of efficient operational systems lead to prohibitive start-up costs and significant losses



- **Input suppliers:** tend to be limited in their ability to provide appropriate services to farmers across the country. A lack of access to finance and technical expertise severely limits the quantity and quality of services they can provide to farmers. Long distances between input suppliers and the farmers they serve further limits their ability to effectively service smallholder farmers.
- **Small Holder Farmers (SHF's):** Supply more than 80 percent of the total products consumed in Kenya. They sell directly to consumers or through local traders, and tend to have a diverse array of access issues, including difficulties obtaining inputs, credit, Information and climatic changes
- **Informal/formal traders:** Are the single most important marketing actor, controlling over 70 percent of marketed products. Standards and quality is a considerable constraint, reliable quality testing is virtually non-existent, and the equipment used for handling and transportation does not meet the minimum safety standards set by industry regulators.

SHOCKS FACING SHFs AND THEIR COPING MECHANISMS



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Coping Mechanism – Limited access to affordable inputs

- Without access to inputs, coping mechanisms exist at the risk of lower yield

Sample of coping mechanisms when farmers are not able to access or afford agricultural inputs

Sharing

- Farmers may decide to spread out fertilizers and chemicals meant for a particular amount of crop on to a larger portion of crop. This could be inputs meant for tea/Sugarcane contract farming shared between Tea/sugarcane and maize.



- Crop yield is compromised and farmers report losses especially if they are not able to repay input provided under contract farming.

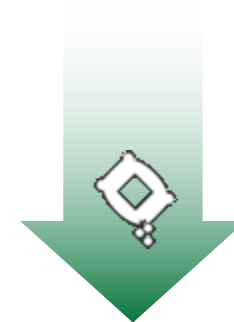
Replanting

- A few farmers noted that replanting seeds from previous seasons could still provide them with some harvest but very prone to diseases, drought and other weather elements.



Black market

- 'Black market' inputs refer to inputs either acquired in an illegal way or bought from unscrupulous businesspeople at a cheaper price.



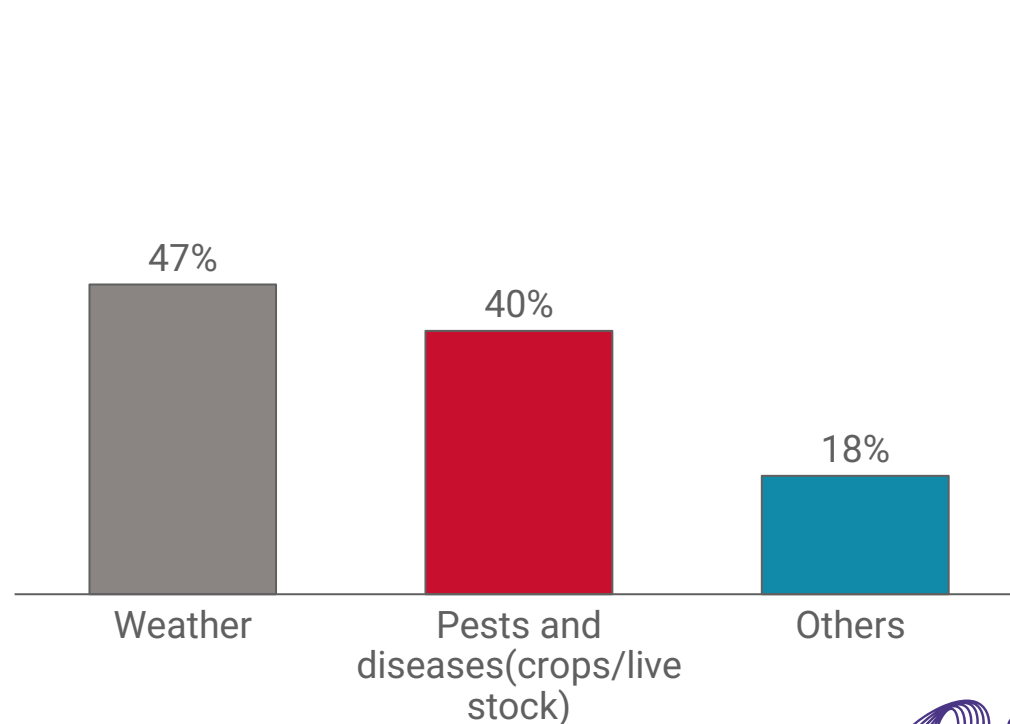
- Several farmers in this category have fallen prey to conmen who sold them fake seed with coloring and have no one to address grievances.

Adverse Weather Conditions- Coping Mechanism

- Adverse weather conditions is the most salient shock experienced by SHFs; more than half do not do anything to cope with the shock
- Of the SHFs who reported experiencing pests and diseases, more than a third used other coping strategies , these included, friends/family, spent savings, reduced expenses, borrowed money, look for more and different foods, reduce household food consumption, sold productive assets, sold household assets, go to Community Savings Group

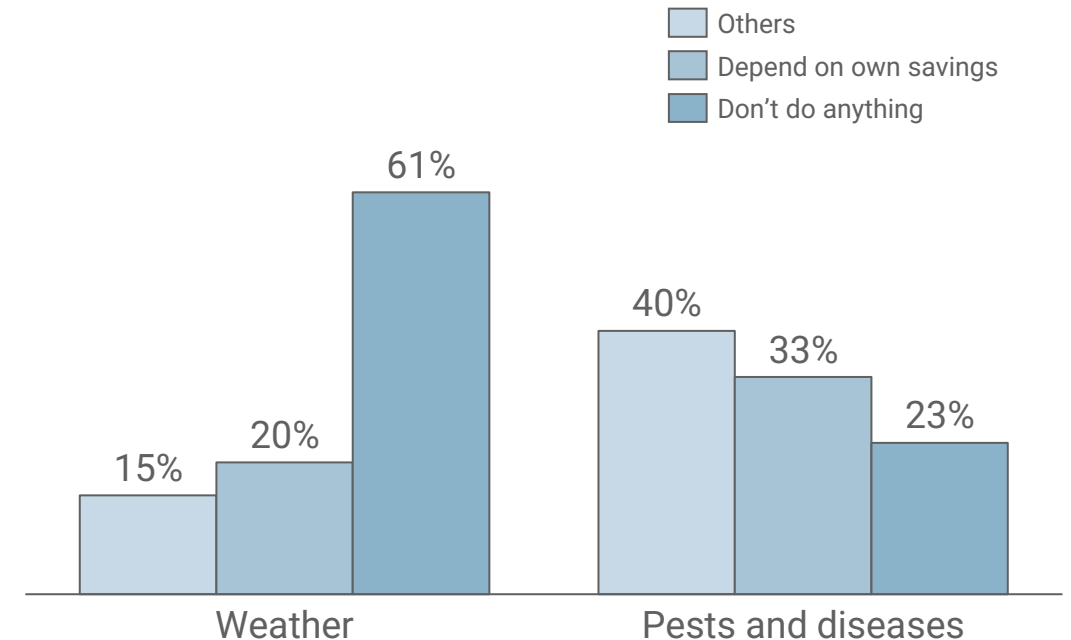
Major threats in agriculture experienced by SHFs

% of SHFs by type of threat



SHFs Coping mechanisms against the threats

% SHFs by coping mechanism



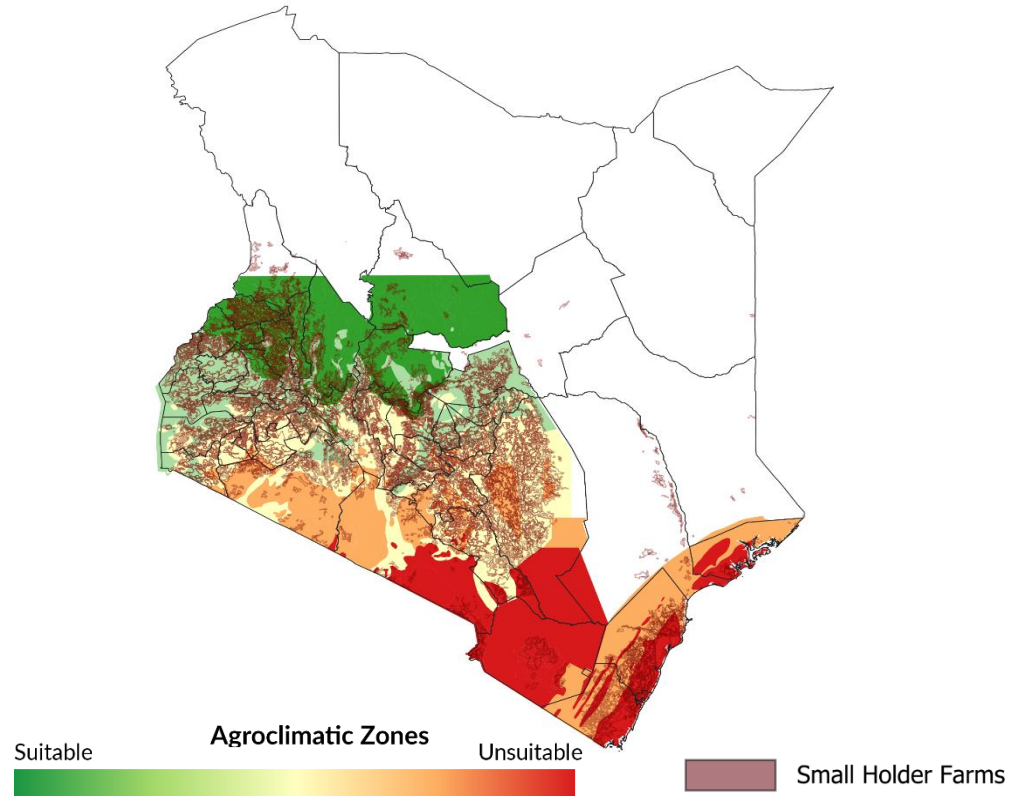
Source: MercyCorps; Comparative analysis of smallholder farmers in Kenya, Zambia and Tanzania (2017)

Notes; Others includes Appropriate Inputs Not Affordable, Appropriate Inputs Not Available, Shortage or Poor Quality of Seeds, Low Access to Credit Facilities, Poor Access to Markets; No, Buyers, Theft, Others, Inability to Pay for Wedding Expenses, Inability to Pay School Fees, Lack of Knowledge/Skills/Information, Shortage of Pasture or Feed, Unusually High Prices for Food, High Variability of Prices in The Market, ETC

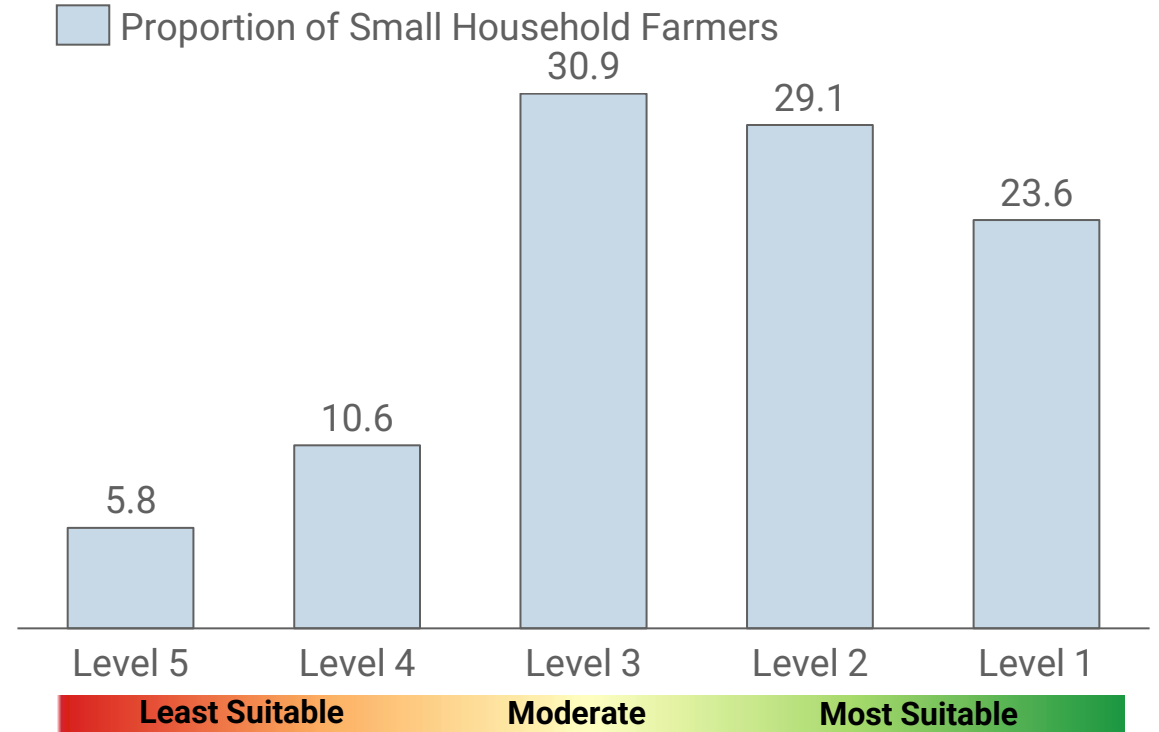
Adverse Weather Conditions- Coping Mechanism

- Adverse climatic conditions in some parts of the country where SHFs are located threaten their productivity

Distribution of smallholder farms overlayed with the agroclimatic zones



% of SHFs in each agro climatic zone category



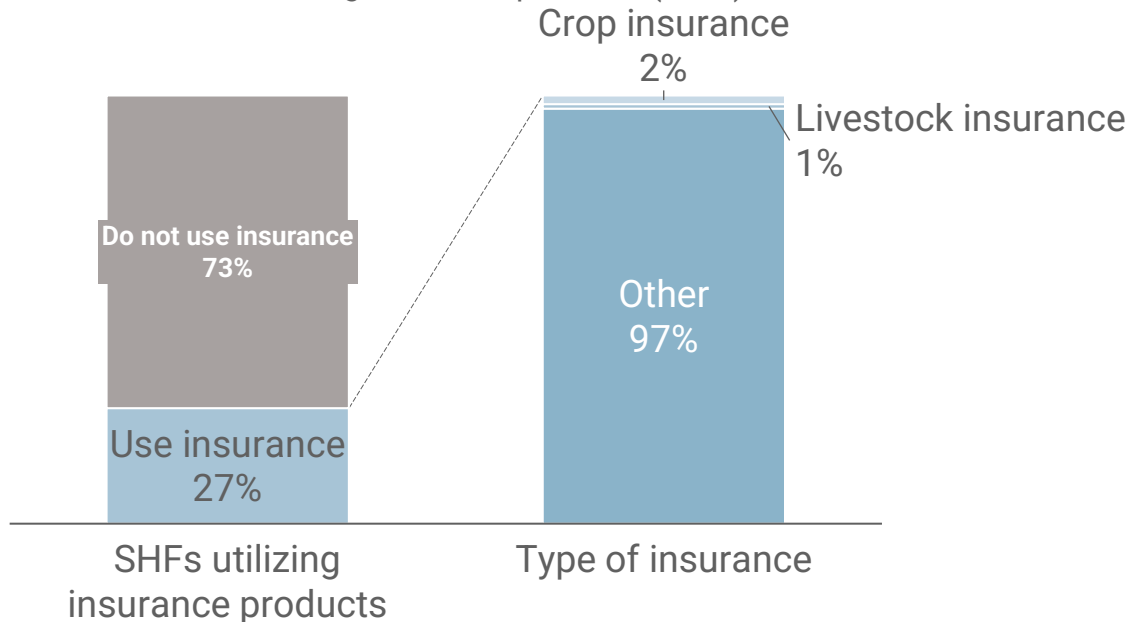
The agro-climatic zones of Kenya are based on climate (temperature and precipitation ranges within which the main crops of Kenya can flourish) and the main zones (probability of meeting the temperature and water requirements of the leading crops). These zones give an estimate of the climatic yield potential.

Coping Mechanism – de-risking against adverse Climate change/Increased climate variability

- Change in climate variability exposes SHFs to unexpected shocks and losses; a negligible number utilize crop/ livestock insurance
- Access to agricultural insurance in Kenya is limited, with uptake below 1% for both male and female farmers, despite the importance of insurance as a risk management tool¹
- Lack of information and perceived cost of insurance are stated as the main barriers to the use of insurance among SHFs in Central and Western regions of Kenya²

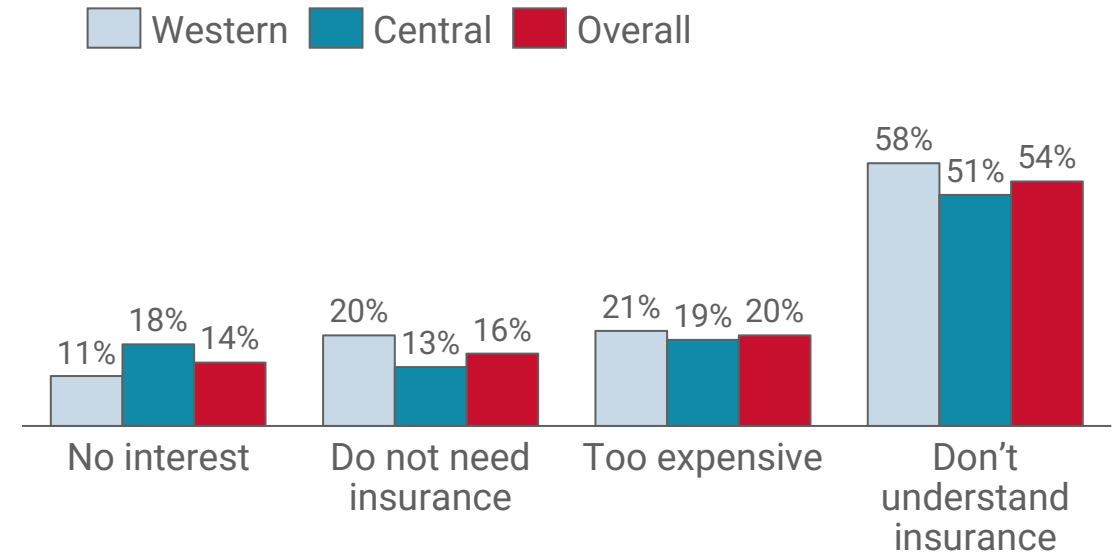
SHFs with Insurance and type of Insurance

% of SHFs utilizing insurance products (2017)



Barriers to use of insurance²

% barriers to use of insurance by SHFs



" I have never considered using insurance for the simple reason that I don't know how those insurance covers work. No one has bothered to tell me how the insurance covers work neither am I aware of the insurance covers that are available for farmers" FGD participant²



Source; MercyCorps; Comparative analysis of smallholder farmers in Kenya, Zambia and Tanzania (2017) ; ¹KIPPRA, Women's access to agricultural finance in Kenya: Baseline report 2019, ²MercyCorps, Agrifin accelerate, Benchmark study of smallholder farmers of Kenya, 2015

Notes; Other types of insurance include National Health Insurance Fund (NHIF), medical insurance and other insurance covers

Coping Mechanism- Low uptake of de-risking opportunities

- The low insurance adoption by SHFs is attributed to both demand and supply functions

Demand-side barriers

Low awareness of insurance

Low trust in the provider and the chance of receiving a pay-out

Poor understanding of how insurance works

High cost of premiums and lack of government subsidy

Difficult to register and claim, which requires travelling to a nearby town

Supply-side barriers

Insurance services for smallholder farmers can be costly and complicated to design

Distribution and operations: smallholder farmers are expensive customers to acquire and serve

Low profitability potential due to low premiums

Difficult to provide some policies without government support and subsidies

However, there are some proposed solutions that can counter the low uptake. This is through bundling and cross-selling index insurance with other value-added services which is pay-out key to driving uptake amongst farmers. Bundling allows farmers to access a suite of relevant services, such as agronomic advisory and input loans. Cross-selling index insurance with other types of insurance, such as health insurance, offers farmers greater cover for their risks and can often allow insurance providers to cross-subsidise the cost of index insurance services.



Source; GSMA, Agricultural insurance for smallholder farmers, 2020; ISF Agri insurance for smallholder farmers , 2022

Notes; Digital agricultural insurance providers in Kenya include; ACRE Africa, PULA, APA Insurance, DigiFarm, Kenya Livestock Insurance Programme, WorldCover

Coping Mechanism- Limited Access to Financing Solutions

- More than half of the respondent farmers reported belonging to self help groups

- Farming groups are encouraged by private micro-financiers when farmers seek credit. MFIs only provide credit to groups of farmers who can co-guarantee each other's credit worthiness based on farming ability.



- A few contract farming companies require their farmers to grow their crop in groups in order to manage them better in terms of training, monitoring and support.



53%

- of farmers interviewed reported belonging to self help groups. These are different from farming groups but prove the importance of the social construct in how farmers behave

- Transportation of inputs through as a group is cheaper because they are able to hire dedicated transportation. The farmers will also only need to have one (or a few) of them to accompany the cargo.



- Discounts are offered by suppliers of agro-inputs if they buy the inputs in bulk. Some of these suppliers also deliver the inputs to a central location close to the farms

SHF LITERATURE GAP ANALYSIS



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The literature research and data analysis surfaces the following gaps

Theme	Literature	Gaps
Farmer profiles	<ul style="list-style-type: none"> FAO, The economic lives of smallholder farmers; An analysis based on the household data from nine countries, 2015 (The economic lives of smallholder farmers (fao.org)) One Acre Fund: Smallholder Farming - at the Centre of our Food Systems One Acre Fund World Bank report, Kenya Agricultural Sector Risk Assessment, 2015 (Kenya: Agricultural Sector Risk Assessment (worldbank.org)) MercyCorps: Comparative Analysis of Smallholder Farmers in Kenya, Zambia and Tanzania, 2017 (Arial (mercycorpsagrifin.org)) Agrifin accelerate, Benchmark study of smallholder farmers of Kenya, 2015 Agricultural Areas in Kenya - Datasets - Data World Resources Institute (wri.org) Gender productivity differentials among smallholder farmers in Africa, 2015 (WPS_No_231_Gender_productivity_differentials_among_smallholder_farmers_in_Africa_A_cross-country_comparison.pdf (afdb.org)) Women grow 70% of Africa's food. But have few rights over the land they tend World Economic Forum (weforum.org) World Bank, 2018 FSD Kenya: Agriculture and Processing Financing Market Analysis, 2022 (Agriculture-and-Processing-Financing-Market-Analysis.pdf (fsdkenya.org)) The Bi-annual data survey conducted by Lime group on behalf of Kenya dairy Board - 2022 Kenya National Bureau of Statistics, Census 2019 FinAccess Household Survey 2021 Dataset 	<ul style="list-style-type: none"> While there is some quantitative data on smallholder farmer socio-demographic characteristics there is a need for more qualitative research to gain a deeper understanding of their experiences and perspectives. Besides, there is limited data that fully explores gender differences in access to resources, decision-making power, and control over assets among smallholder farmers, which makes it difficult to understand and address gender inequalities



The literature research and data analysis surfaces the following gaps cont.'

Theme	Literature	Identified Gaps
Digital/Non-digital financial access	<ul style="list-style-type: none"> • Agriculture & Processing Project Landscape Report (fsdkenya.org) • KIPPRA: Women's Access to Agricultural Finance in Kenya: Baseline Report 2019 UN Women Data Hub • MercyCorps: Comparative Analysis of Smallholder Farmers in Kenya, Zambia and Tanzania, 2017 (Arial (mercycorpsagrifin.org)) • Agrifin accelerate, Benchmark study of smallholder farmers of Kenya, 2015 • Digital Loan Process Transforming Smallholder Access to Credit in Kenya - Farming First • Agricultural Insurance for Smallholder Farmers Digital Innovations for Scale.pdf (gsma.com) • The Bi-annual data survey conducted by Lime group on behalf of Kenya dairy Board - 2022 • Malaria Atlas Project, Open Street Maps • FinAccess Household Survey 2021 Dataset 	<ul style="list-style-type: none"> • Despite the growth of digital financial services in Kenya, there is limited data on the financial behavior and practices of smallholder farmers, particularly in rural areas. • There is limited information that quantifies the amounts in saving, borrowed, requested and granted loans disaggregated by gender, age or education level
Digital/Non-digital information access	<ul style="list-style-type: none"> • The Digital Life of Kenya's smallholder farmers – who's using what phones to access information and loans Balancing Act - Africa • The Bi-annual data survey conducted by Lime group on behalf of Kenya dairy Board - 2022 • Krell et al., Smallholder farmers' use of cellphone services in Central Kenya, 2019: (PDF) Smallholder farmers' use of cellphone services in central Kenya (researchgate.net) • FAO & CABI, 2021: Challenges And Capacity Gaps In Smallholder Access To Digital Extension And Advisory Services In Kenya And Uganda Request PDF (researchgate.net) • GeoPoll, A study of Kenya's agricultural sector: the effect of mobile technology on farming in modern Kenya, 2018: Data Report on Farming in Kenya and Mobile Phone Usage - GeoPoll • Kenya National Bureau of Statistics, Census 2019 • (PDF) Role of Television in Communicating Agricultural Information: the Case of Citizen Television's Shamba Shape up Programme in Kenya (researchgate.net) • FSD, 2022: Agriculture & Processing Project Landscape Report (fsdkenya.org) 	<ul style="list-style-type: none"> • There is limited understanding of the broader context in which smallholder farmers operate, including the complex interplay of factors that impact their livelihoods.

The literature research and data analysis surfaces the following gaps cont.'

Theme	Literature	Identified Gaps
Opportunities for increasing income through digital financial and information services	<ul style="list-style-type: none"> Fintech report, 2016: pwc-fintech-global-report.pdf Existing partnership across various dimensions from the FinTrek report 2020 FSD, 2021: Agriculture & Processing Project Landscape Report (fsdkenya.org) GSMA, The Mobile Economy Sub-Saharan Africa 2022: GSMA The Mobile Economy Sub-Saharan Africa 2022 - The Mobile Economy MercyCorps: Comparative Analysis of Smallholder Farmers in Kenya, Zambia and Tanzania, 2017 (Arial (mercycorpsagrifin.org)) World Bank, Overcoming barriers to agricultural productivity for smallholder farmers: Identifying constraints to agricultural productivity for smallholder farmers (worldbank.org) Agricultural Insurance for Smallholder Farmers Digital Innovations for Scale.pdf (gsma.com) 	<ul style="list-style-type: none"> While there is some evidence that DFS and DIS can improve the livelihoods of smallholder farmers, there is limited research on the long-term impact of these services.
Constraints to SHFs increased productivity	<ul style="list-style-type: none"> K4D, Agricultural productivity in Kenya: barriers and opportunities, 2018: Agricultural Productivity in Kenya: Barriers and Opportunities K4D (ids.ac.uk) FSD, 2021: Agriculture & Processing Project Landscape Report (fsdkenya.org) Kenya Agriculture Sector Transformation and Growth Strategy: Agricultural Sector Transformation and Growth Strategy - 2019-2020 - Warehouse Receipt System Council (wrsc.go.ke) Ministry of Agriculture (MoA), Livestock and Fisheries website: Ministry of Agriculture, Livestock, Fisheries and Co-operatives (kilimo.go.ke) Agriculture Mechanization Bill 2021: DRAFT MECHANIZATION POLICY--20x 3.indd (kilimo.go.ke) FSD, 2021: Agriculture and processing financing market analysis - Financial Sector Deepening Kenya (fsdkenya.org) Kenya Climate Smart Agriculture Strategy 2017-2026: Kenya Climate Smart Agriculture Strategy - 2017-2026 UNDP Climate Change Adaptation (adaptation-undp.org) Kenya National Adaptation Plan 2015-2030: Kenya national adaptation plan 2015 - 2030. Enhanced climate resilience towards the attainment of vision 2030 and beyond. Ministry of Environment and Natural Resources. July 2016 AHADI toolkit (devolution.go.ke) 	<ul style="list-style-type: none"> There is limited research on the experiences and needs of smallholder farmers from underrepresented communities, including women and marginalized groups, which limits our understanding of the challenges they face in accessing financial service
SHFs unexpected events and their coping mechanisms	<ul style="list-style-type: none"> MercyCorps: Comparative Analysis of Smallholder Farmers in Kenya, Zambia and Tanzania, 2017: Arial (mercycorpsagrifin.org) Geoscience Landscape Portal: World Resource Institute KIPPRA: Women's Access to Agricultural Finance in Kenya: Baseline Report 2019 UN Women Data Hub Agrifin accelerate, Benchmark study of smallholder farmers of Kenya, 2015 Agricultural Insurance for Smallholder Farmers Digital Innovations for Scale.pdf (gsma.com) State of the Sector: Agri-Insurance for Smallholder Farmers – ISF Advisors 	<ul style="list-style-type: none"> Insufficient qualitative research to gain a deeper understanding of smallholder farmer experiences and perspectives.

ANNEX 1



AGRIFIN

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Annex1: Organizations that deal with the SHFs

Organization	Mandate	Value chains
Kenya Agriculture and Livestock Research Organization (KALRO)	KALRO is mandated to undertake, coordinate and regulate all aspects of research in agriculture and livestock development, and promote the application of the research findings, technologies and innovations.	<ul style="list-style-type: none"> • Crops – food crops, horticultural crops, industrial crops (coffee, tea, sugarcane) • Livestock – poultry, dairy, beef, goats, sheep, apiculture, non-ruminant
One Acre Fund	One Acre Fund is a Kenyan non-profit that helps smallholder farmers. providing them with access to financing, training, and a comprehensive package of farm inputs. One Acre Fund's goal is to help farmers increase their yields and profits, and to build long-term sustainability for themselves and their communities. Through its programs and services, One Acre Fund is working to improve the lives of smallholder farmers and to support the development of Kenya's agriculture sector.	<ul style="list-style-type: none"> • Crops –Maize, beans, soybeans • Trees
Centre for Agriculture and Bioscience International (CABI)	CABI Kenya is a branch of a global non-profit that improves people's lives through scientific expertise in agriculture and the environment. They work in Kenya to support sustainable agriculture and resource management, with a focus on small-scale farmers and communities. Key areas of work include plant health, invasive species management, and sustainable agriculture/food systems. They also provide information services for evidence-based decision-making.	<ul style="list-style-type: none"> • Crops – maize, rice, beans, potatoes, sweet potatoes, horticulture • Livestock – poultry, dairy and beef cattle • Fisheries
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	ICRISAT works with various partners, including the government, research institutions, and farmer organizations, to support sustainable agriculture and natural resource management. ICRISAT Kenya conducts research and development, extension services, and capacity building activities aimed at improving the livelihoods of small-scale farmers and communities. Some of the key areas of work for ICRISAT Kenya include crop improvement, natural resource management, and the development of sustainable agriculture and food systems.	<ul style="list-style-type: none"> • Cereals – maize, sorghum and millet • Legumes- groundnuts, chickpeas and lentils • Livestock
Syngenta Foundation	The Syngenta Foundation is a non-profit that focuses on improving food security and livelihoods in Kenya by supporting smallholder farmers, particularly women and youth, to increase their productivity and profitability. It does this by providing training, financing and other support services, and works with local organizations to build their capacity. The goal is to help farmers overcome challenges and build a sustainable future for themselves and their communities.	<ul style="list-style-type: none"> • Cereals – maize, beans, sorghum and millet • Horticulture • Livestock
Farm Africa	Farm Africa helps small-scale farmers increase productivity and profitability through training, financing and support services. The organization also works with local partners to build capacity and promote sustainable agriculture and enterprise. The goal is to support farmers, particularly women and youth, in overcoming challenges and building a sustainable future.	<ul style="list-style-type: none"> • Cereals – maize, beans, sorghum and millet • Horticulture – vegetables, fruits • Livestock – cattle, goats and sheep



Annex2: Organizations that deal with the SHFs cont.'

Organization	Mandate	Value chains
African Agricultural Technology Foundation (AATF)	AATF is a Kenyan non-profit working to improve livelihoods of African small-scale farmers through appropriate agricultural technology. It partners with various stakeholders to promote use of technology, improve seed production, provide access to finance & markets and advocate for the sector.	<ul style="list-style-type: none"> • Cereals – maize, beans and rice • Horticulture – vegetables, fruits • Livestock - chickens, goats and cows
International Fund for Agricultural Development (IFAD)	IFAD works to support smallholder farmers and rural communities in the country through investment in agriculture and rural development projects. The focus of IFAD's work is to help farmers increase their yields and incomes and improve their livelihoods through sustainable agriculture practices and market-oriented approaches.	<ul style="list-style-type: none"> • Crops –Maize, beans, rice and potato • Livestock- dairy and beef cattle • Fish
Alliance for Green Revolution (AGRA)	AGRA's mandate is to support smallholder farmers in Africa to increase their yields and improve their livelihoods. AGRA works in Kenya to develop and promote sustainable agriculture practices, improve access to markets, and strengthen agricultural value chains.	<ul style="list-style-type: none"> • Crops – maize, sorghum, beans, cowpeas, rice, potatoes • Livestock – poultry, dairy and beef cattle • Agroforestry
We Effect	We Effect organization works with smallholder farmers and rural communities to improve the productivity, profitability, and resilience of farmers through programs that promote sustainable agriculture practices, improve access to markets and finance, and enhance the capacities of farmers and their organizations.	<ul style="list-style-type: none"> • Crops – maize, beans, rice • Horticulture – vegetables and fruits • Livestock - dairy
Apollo Agriculture	Apollo Agriculture is a Kenyan agri-tech company that provides smallholder farmers with financing, advisory services, and technology-enabled agronomy services. Its goal is to help farmers increase their yields and incomes through improved farm management and access to markets. The company offers a range of services, including credit, inputs and seed sales, data-driven agronomy, and market linkages. Its services are designed to help farmers increase their productivity and efficiency, while reducing risks and costs.	<ul style="list-style-type: none"> • Crops – maize, beans • Horticulture – vegetable • Livestock – dairy, poultry
Oxfam	Oxfam Kenya is a development organization working to reduce poverty and promote social justice in Kenya. It works in agriculture, food security, and economic justice and focuses on empowering smallholder farmers, pastoralists, and rural communities. It promotes sustainable agriculture practices and improves market and finance access. It also focuses on gender equality and empowering women and girls, particularly in agriculture.	<ul style="list-style-type: none"> • Crops • Livestock

Annex3: Organizations that deal with the SHFs cont.'

Organization	Mandate	Value chains
Pula	Pula Kenya is a digital agriculture company that provides insurance solutions to smallholder farmers in Kenya. It aims to help farmers reduce the risks associated with farming and increase their yields and incomes.	<ul style="list-style-type: none"> • Crops– maize, beans • Horticulture – vegetables • Livestock – poultry and dairy
Twiga Foods	Twiga Foods is a Kenyan agri-tech company that provides a mobile-based platform connecting small-scale farmers to markets and customers. The company's platform offers farmers access to inputs, such as seed, fertilizer, and pesticides, as well as a marketplace to sell their produce. Twiga Foods aims to address the challenges faced by small-scale farmers in Kenya, including limited access to markets and inputs, by connecting them to a network of customers and suppliers.	<ul style="list-style-type: none"> • Fresh produce including vegetables and fruits
Green Arava	The goal of Green Arava's work in Kenya is to help farmers increase yields and improve the quality of their crops, while reducing water and energy consumption. The company provides training and technical support to farmers to help them maximize the efficiency and productivity of their operations. Green Arava is focused on helping farmers adopt innovative and sustainable agricultural practices, which can increase their competitiveness and profitability in the market..	<ul style="list-style-type: none"> • Horticulture – fruits and vegetables
TechnoServe	TechnoServe is a non-profit organization in Kenya focused on reducing poverty by improving agricultural productivity and marketing for small-scale farmers. They provide training, market access and financial support and work with various stakeholders to achieve their goal.	<ul style="list-style-type: none"> • Horticulture • Livestock - dairy and others
CARE International	CARE International Kenya is a humanitarian and development organization working to reduce poverty and promote social justice in Kenya. It focuses on empowering women and girls, improving food security and agriculture, and responding to emergencies. Its work in agriculture focuses on improving smallholder farmers' access to markets and finance, promoting sustainable agriculture practices, and building resilient communities.	<ul style="list-style-type: none"> • Cereals – maize, beans, sorghum and millet • Horticulture – vegetables, fruits • Livestock – cattle, goats and sheep
SNV	SNV is a non-profit organization working in Kenya to promote sustainable development and reduce poverty through improved access to basic services, economic opportunities, and sustainable agriculture. They provide training and technical assistance to farmers to improve productivity and market competitiveness and work to improve market linkages for easier product sale and resource access.	<ul style="list-style-type: none"> • Horticulture • Dairy • Poultry



Annex4: Samples of ICT-Enabled Extension and Advisory Services in Kenya.

Name of program	General description	Information on gender-related activities or impacts
Kilimo Salama	Implemented by Syngenta, this initiative aims to increase farmers' access to micro- insurance in the event of drought or excessive rains. Agro dealers act as distributors of the service. Farmers use their phones to purchase the service (by scanning a QR code) and also to receive payouts via mobile money.	Roughly 46 percent of their clients in the regions where the program is active are women (L. Johnson, personal interview, Nov. 20, 2012).
Kilimo Media International (KiMI), formerly Farmer Voice Radio	KiMI, with funding from Airtel, was established in 2012 to continue the efforts of the Bill and Melinda Gates Foundation- funded Farmer Voice Radio in Kenya. The pilot project worked with two national radio stations and six community stations. , Extension agents and farmers worked with radio stations to develop and broadcast agricultural radio shows. Working with Airtel, KiMI is incorporating complementary SMS features to deliver tips and additional information to farmers.	KiMI establishes a gender advisory panel at each of the local radio stations where it broadcasts to ensure that shows address issues that are important to men and to women. Broadcasting schedules are organized to identify peak listening periods for men and for women. Listening groups are also organized by KiMI for women to encourage discussion, learning and exchange of information. Extension officers working with KiMI are trained in ways to include women in their work. For example, both men and women lead farmers are interviewed during shows.
M-Kilimo	Kenya's largest call center and business processing operator, KenCall, launched "M- Kilimo" (www.m-kilimo.com/), an agriculture hotline providing smallholder farmers with access to advice from agricultural experts with a minimum of a bachelor's degree in agriculture and two years of field experience (Pshenichnaya, 2011). Farmers receive information in English, Swahili and other local languages.	Although the program was not designed specifically to reach women farmers, an estimated 43 percent of callers are women farmers, and they make up 31 percent of subscription users (GSMA, 2010),
National Farmer Information Service (NAFIS)	Developed by the National Agriculture and Livestock Extension Program (NALEP) in 2007, this information service provides farmers with agricultural extension information via the Web or a hotline. Information is available for roughly 23 crops and livestock products.	The Agriculture Sector Development Strategy is targeting women by selecting value chains where women farmers are concentrated. Much of the work with women occurs via community interest groups. The ICT-enabled services are not designed to address any specific constraints that women may face. The expectation is that the expansion of Pasha Centers (public ICT centers) will enable women and other groups now to have access to computers from which they can search for Web-based agricultural information.
Plantwise	Plantwise, an initiative of Commonwealth Agricultural Bureaux International, CABI, establishes plant health clinics at local markets to help farmers address disease and pest issues through contact with a "plant doctor."Plant doctors provide farmers with prescriptions that can be filled with local "pharmacists" (agro-vets). Plant doctors have access to an online knowledge bank for consultation and also for uploading information about diseases and pests that can help in early detection of plant and pest problems.	The location of health clinics in market places is meant to provide men and women farmers equal access to plant doctors. Women are also recruited as plant doctors. In Bangladesh, up to a quarter of plant doctors are women (Forrest, 2011).In Nakuru North in Kenya, 75 percent of farmers who go to the clinic are men. An impact evaluation of Plantwise's activities in Kenya is planned for 2013. The evaluation is expected to quantify gender- differentiated impacts (R. Kamau, personal communication, Nov. 20, 2012).
Shamba Shape Up	This popular reality TV farm-makeover show profiles the efforts of farmers around the country as they adopt new practices that improve their farms. Episodes are aired on Citizen TV in English and Swahili and can also be viewed online.	An estimated 18 percent of rural households in Kenya have television (KNBS and ICF Macro, 2010). Also in rural areas, 22 percent of rural women and 39 percent of men report watching television at least once a week (ibid). It is possible for women and others to watch the show, though the reach is somewhat limited. Some of the men and women farmers interviewed mentioned watching the show. One of the presenters of the show is a woman, and both men and women farmers have participated as guests in the show.

Annex5: Agri-Tech Applications Transforming Agriculture in Kenya

Name	Description
Mkulima Young	Created by Joseph Macharia, a Kenyan farmer, Mkulima Young's website connects farmers and potential buyers throughout East Africa. The platform is enhancing trade throughout the region. Using the application, Kenyans can feasibly buy and sell agricultural products. On the platform's website's homepage, Mkulima Young features young farmers' selfies with their products, the latest products its members uploaded to the site and requests from buyers. Another page on the site includes a virtual market that allows farmers in Kenya to showcase and sell their cash crops, flowers, livestock and other agriculture products. Mkulima Young's virtual marketplace gives users access to data to help understand trend projections and market insights.
Twiga Foods Ltd	Beginning in 2014, Twiga sources products from Kenyan farmers and food manufacturers for registered vendors to sell, in turn providing adequate market security for farmers and vendors. After sourcing fresh fruits and vegetables from Kenyan farmers, Twiga Foods brings produce to Kenya's urban centers. Currently, more than 4,000 suppliers and more than 35,000 vendors utilize Twiga's marketplace platform. Twiga prides itself on transparency and efficient delivery of quality products. The platform offers smallholder farmers reassurance that their products will be profitable. Twiga Foods makes selling and buying Kenyan produce easier for average Kenyan farmers and vendors through its transparency and a guaranteed market.
DigiCow	Founded by tech start-up Farmingtech Solutions , which specializes in agricultural data management, DigiCow provides smallholder farmers with farming management services . With DigiCow's services, farmers in Kenya can reach data-based conclusions rather than guessing and estimating results, which was common practice before applications like DigiCow. The application enables its users to make data-driven decisions. Specific tools the application offers are, but are not limited to, virtual training, message boards for farmers to connect with each other, digital tracking of feeding, insemination and milking, notifications for vital dates and analyzed reports. April 2019 marked a notable milestone for DigiCow. The World Bank recognized the Farmingtech Solutions team as Kenya's most inventive Agri-tech by awarding DigiCow the winner of the Disruptive Agricultural Technologies challenge. With the DigiCow application, farmers can now keep data sets and make educated decisions.
DigiFarm	Founded by Safaricom, a telecommunication firm in Kenya, DigiFarm allows farmers to connect directly with bulk produce buyers, credit providers and cheaper agronomic materials. DigiFarm arranges deals with buyers for small farmers. These deals are more beneficial than the deals farmers use to make with traditional brokers. More than 40,000 farmers utilize the application. The app allows smallholder farmers to analyze the market of their produce. Additional services DigiFarm provides its users are insurance for weather-related incidents, loss management and recommendations on how to increase yields. Projections estimate that if success continues, DigiFarm will represent 10% of annual ag-business affairs in Kenya. Before DigiFarm's assistance many farmers could not afford supplies but with DigiFarm's help, many small farmers can now run successful operations.



Dalberg Research

FOCUS ON AGRO-PASTORALISTS AND PASTORALISTS

MARCH 2023



This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.



Ngilai, Kenya Photo by Ezra Millstein

- 1) AGRO-PASTORALISTS AND PASTORALISTS PROFILE
- 2) ACCESS TO FINANCIAL SERVICES
- 3) ACCESS TO INFORMATION SERVICES
- 4) FACTORS HINDERING THE USAGE AND ACCESS OF DIS/DFS
- 5) OPPORTUNITIES
- 6) CONSTRAINTS
- 7) SHOCKS AND COPING MECHANISMS
- 8) GAP ANALYSIS
- 9) REFERENCES
- 10) ORGANIZATIONS/ INSTITUTIONS



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High-level summary finding of Pastoralists and Agro-pastoralists

1/2

Pastoralism in Kenya is predominantly practiced in the ASAL regions in Kenya. These areas are characterized by unpredictable low rainfall, high temperatures throughout the year and limited resources/ pasture as well as poor infrastructure, food insecurity and malnutrition. During the dry seasons, the agro-pastoralists supplement feeds with husk from crops to curb scarcity of fodder. A few agro-pastoralists especially those in more commercial farming grow their own pasture.

Pastoralists households rely on livestock and livestock products as their main source of livelihood though a few run small businesses to bridge the income during off seasons(when there is limited pasture and resources). For many households, livestock carries cultural and social significance beyond its economic value. Most of the pastoral households are male headed and report low literacy levels which leads to low pick up of information shared.

There is low digital financial and information services penetration among pastoralists. Most of the pastoralists rely on traditional methods to access information like peer-to-peer learning, radio and have a high trust in extension officers. NGOs play an essential role in relaying extension and advisory services to pastoralists.

Limited digital infrastructure and financial literacy are highlighted as causes of the low uptake of digital services. However, there are initiatives to increase digital inclusion among pastoralists; Afriscout and KAZNET by ILRI among other organisations/systems provide digital information to pastoralists on pasture and markets.

Informal banking has a high uptake compared to formal banking which is practiced through merry-go rounds, table banking and village groups like Village Savings and Lending Associations (VSLAs) and/or Chamas.

Access to financial services especially formal loans is limited due to factors such as access to collateral (land is mostly owned by community and cattle are not registered assets as chattels), limited product knowledge, and low trust in formal financial institutions.

High-level summary finding of Pastoralists and Agro-pastoralists

2/2

Pastoralists in Kenya face several challenges that hinder optimal productivity, including drought and climate change, as well as eroding land management practices and land fragmentation. They rely on open grazing and water for their livestock, which are adversely affected by prolonged droughts. This results to death of livestock, low production and thus reduced income.

Additionally, they also face challenges from land use conflicts and insecurity, undeveloped markets occasioned by uncontrolled pricing and poor market information from brokers, uncontrolled disease outbreaks, limited infrastructure, and lack of tailored financial services or products.

Despite the surfacing challenges, there are initiatives underway to improve access to information and digital finance among pastoralists such as mobile money platforms and digital wallets. Overall, digital technologies have the potential to significantly improve the livelihoods of pastoralists in Kenya by increasing their access to information, financial services, and markets.

Common shocks that can have significant impacts on their livelihoods include:- prolonged drought, diseases outbreak, market fluctuations (general market functionality including changes in demand and supply which further affects pricing of livestock and other commodities), effects of climate change and insecurity. Pastoralists cope with these shocks through various strategies, including selling livestock, diversifying livelihoods by operating small businesses, relocating, spending on savings, and using livestock insurance (though this is limited to very few). However, the majority of pastoralists took no action to mitigate weather-related threats.



AGRO-PASTORALISTS AND PASTORALISTS PROFILE



AGRIFIN

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Fact sheet about Pastoralism in Kenya

Pastoralism is defined as “an economic activity and a cultural identity that takes advantage of the characteristic instability of range - land environments through strategic mobility, where key resources such as pastures, nutrients and water for livestock becomes available in short-lived and largely unpredictable concentrations”



Close to 90% of the pastoralists' livelihood is dependent on livestock, and the subsector employs about 95% of the local population in the arid and semi-arid lands (ASALs) in northern Kenya



Kenya has about 14% (1.73 million households) who identify themselves with pastoralism. Of these, about half (0.8 million households) solely depend on livestock as a key source of livelihood



They manage about 70% of the country's cattle, 87% of its sheep and 81% of its goats, 100% of its camels, 88% of its donkeys and 74% of the beehives among other livestock value chains.



The pastoralists are faced with perennial scarcity of livestock feeds; high transaction costs and are unable to compete fairly in local, national or global markets due to inadequate investments in infrastructure and basic services.



When disasters such as drought strike, a common phenomenon in arid lands, most families lose a large number of their animals, exposing them to starvation and dire poverty calling for intervention programs

Pastoralist profiling analyses livestock farming by understanding the region of farming, the farmer, and value chains practiced



THE ASAL REGION CHARACTERISTICS

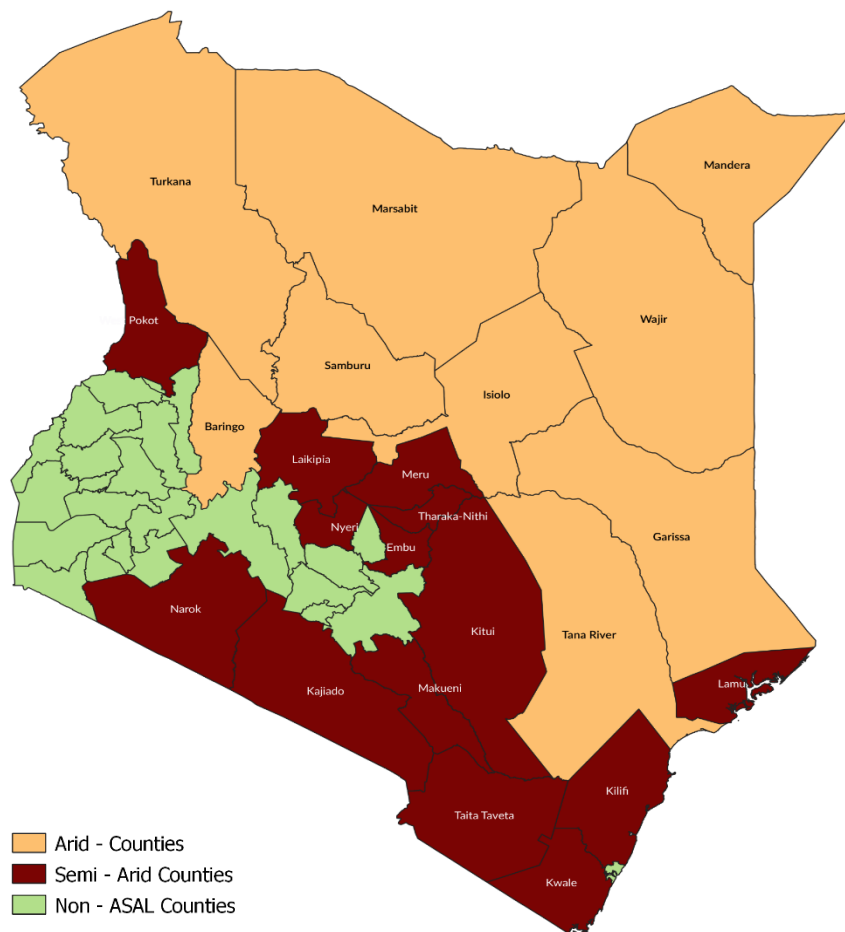


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Pastoralism is predominantly practiced in the ASAL region in Kenya; population within the region has doubled between 2015 and 2019

Map of ASAL and Non ASAL counties in Kenya



Key highlights on Pastoralists



Typically belong to ethnic groups such as the Maasai, Samburu, Turkana, Pokot, Rendile and Borana



The pastoral population has grown from 4.3M – 8.9M between 2015 and 2019



Over 90% of pastoral households are poor or very poor, with only 1% classified as rich¹; they face economic, social, and political marginalization¹



Practice a traditional and highly mobile lifestyle that involves seasonal migration patterns with their livestock



Have limited access to education, healthcare, financial services, clean water and sanitation and transportation

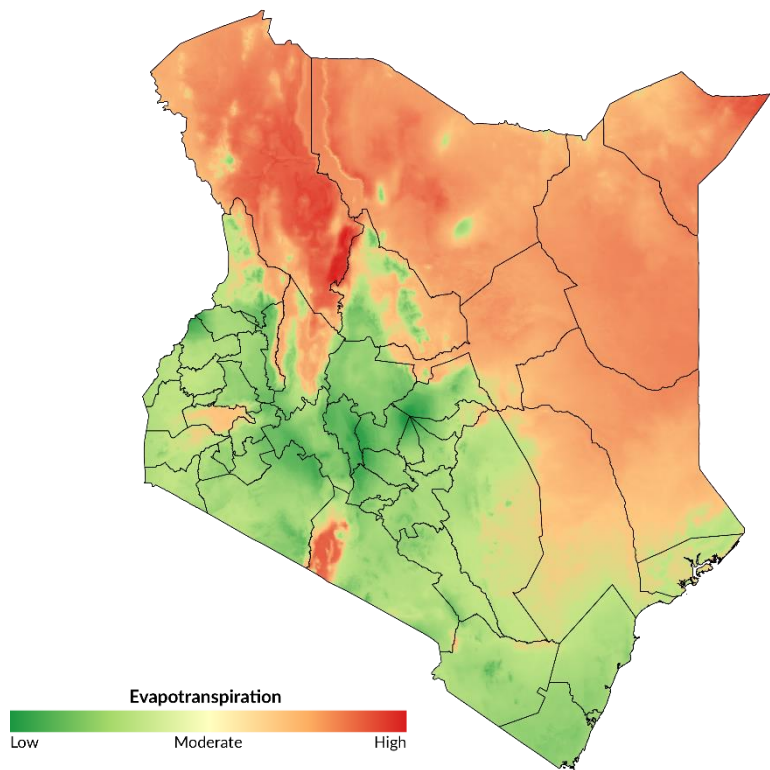


Face frequent shocks e.g., drought, disease outbreaks, and conflict which threaten their livelihoods and food security

The region is characterised by low annual rainfall ranging between 183 mm to 918 mm with the Norther regions being adversely affected

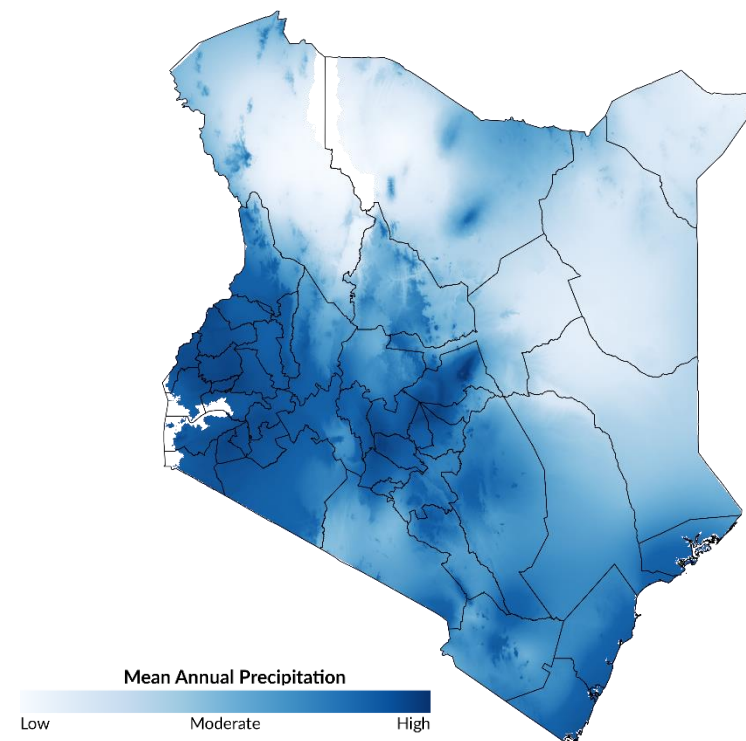
Evapotranspiration rates in Kenya

Map of evapotranspiration rates



Mean annual precipitation in Kenya

Long-term mean annual precipitation in Kenya



Evapotranspiration in Kenya relate to rainfall deficits in the country. The rates are highest towards the northern and eastern counties (**ranging from 1,400mm to 2,000mm**) where the mean rainfall is lowest. The little amounts of rainfall received in these regions are subjected to higher evapotranspiration rates, further reducing the amount of rainfall in ASAL regions, making these counties susceptible to the effects of severe drought.



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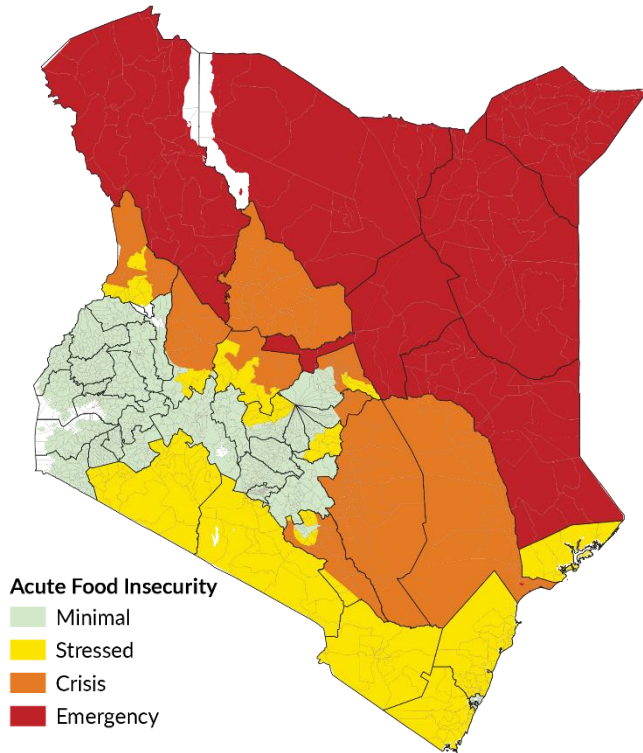
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Source; Ministry of East African Community (EAC), The ASALS and Regional Development, [The World Resource Institute](https://www.asals.go.ke/asal-info/#:~:text=ASALS%20Categorization&text=lt%20is%20home%20to%20about,high%20rates%20of%20evapo%2Dtranspiration.https://www.researchgate.net/figure/Agro-climatic-characteristics-of-ASALs-in-Kenya_tbl1_316739060https://cgiaarcsi.community/2019/01/24/global-aridity-index-and-potential-evapotranspiration-climate-database-v2/) and Consortium for Spatial Information(CSI)

... higher food insecurity and acute malnutrition are common within the ASAL region

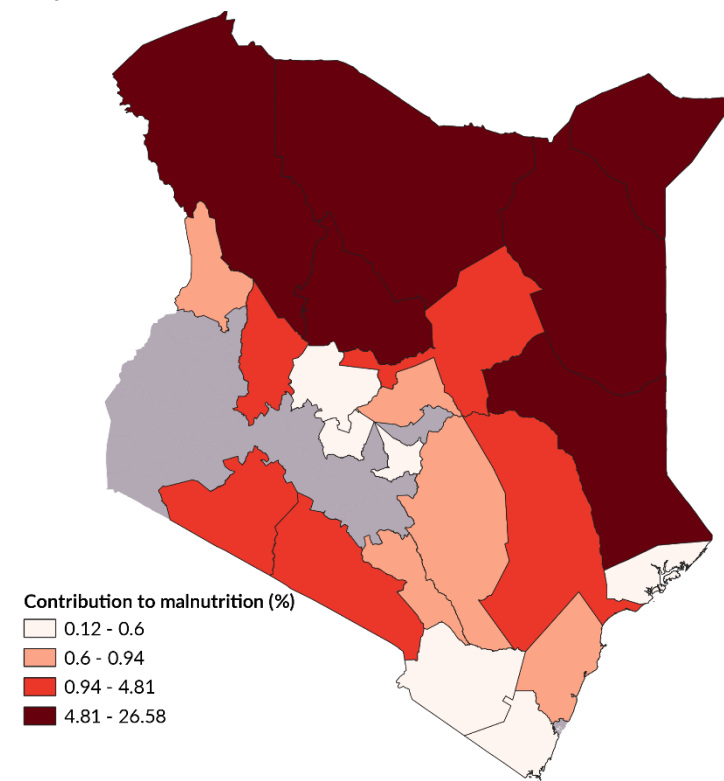
Current/ Projected acute food insecurity

Kenya Food Security Classification (October 2022 – May 2023)



Current/ Projected acute malnutrition

Map of moderate acute malnutrition



74% - 97%

People in the ASAL live below the absolute poverty line

The food security data was derived using satellite data measuring precipitation anomalies, vegetation anomalies (Normalized Vegetation Index - NDVI) and expert opinion based on knowledge of market and trade functioning systems. **Turkana, Mandera** and **Wajir** are on the lead, collectively contributing **57%**, more than half of malnourished pregnant and lactating women.

Total counties under ASAL counties as per the IPC report are 23



Source; Ministry of East African Community (EAC), The ASALS and Regional Development. Feed the Future, The accelerated value chain development program national conference report 2018, The Famine

Early Warning Systems Network (FEWS NET) and Integrated Food Security Phase Classification (IPC)

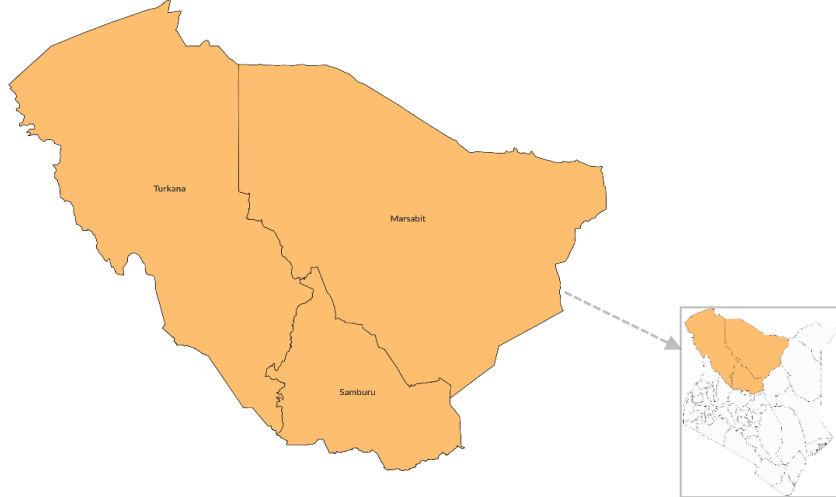
<https://www.asals.go.ke/asal-info/#:~:text=ASALS%20Categorization&text=It%20is%20home%20to%20about,high%20rates%20of%20evapo%2Dtranspiration.>

https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Kenya_Acute_Food_Insecurity_Acute_Malnutrition_2021FebMay_ASAL.pdf

NDMA classified ASAL counties into clusters; more than two thirds of the population in the Northwest counties practice pastoralism

Northwest counties population

Map of Northwest counties



Cash income

Livestock and livestock products, bush products

Livestock

Camel, Goats, Sheep, Cattle

Hazards

Drought, Livestock pests and diseases, restricted access to dry season grazing, animal rustling, ethnic conflict

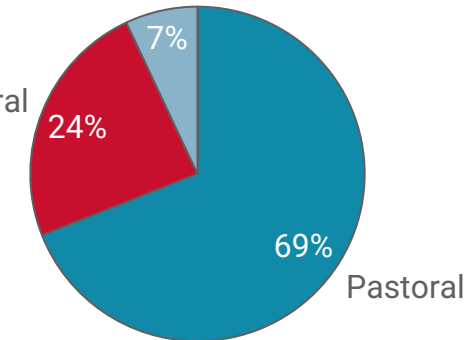
Endemic livestock diseases

CCPP, CBPP, LSD, Heart water disease, Mange and sheep and goat pox, PPR, Enterotoxaemia

Population proportion by source of livelihood

Fishing/ formal employment/
petty trade

Agro-pastoral



Drivers of food and nutrition insecurity

Below average rainfall

Resource - based conflicts and insecurity

Livestock mortalities

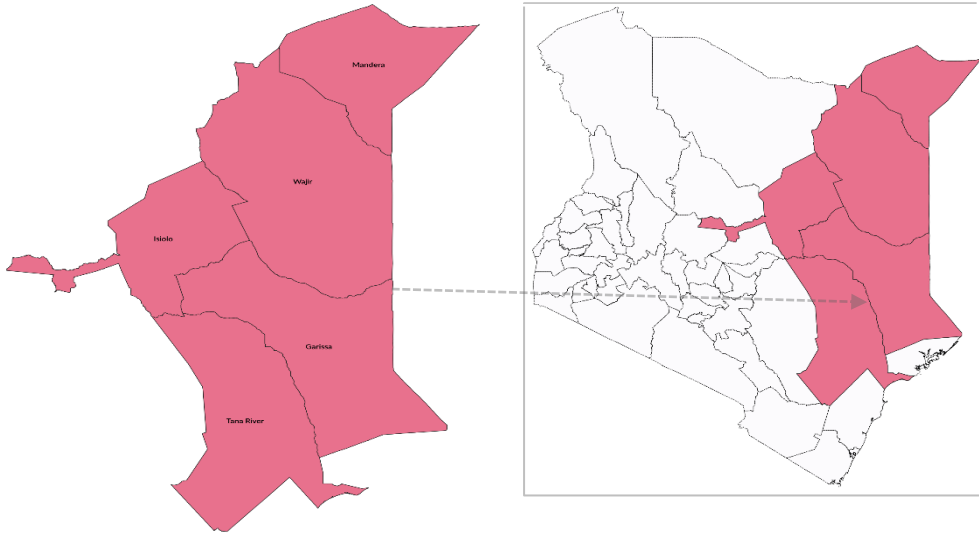
Crop failure

Tree locust invasion in Turkana

In the Northeast counties, more than half of the population engage in pastoralism as their main economic activity

Northeast counties population

Map of Northeast counties



Cash income

Livestock and livestock products, bush products

Livestock

Camel, Goats, Sheep, cattle

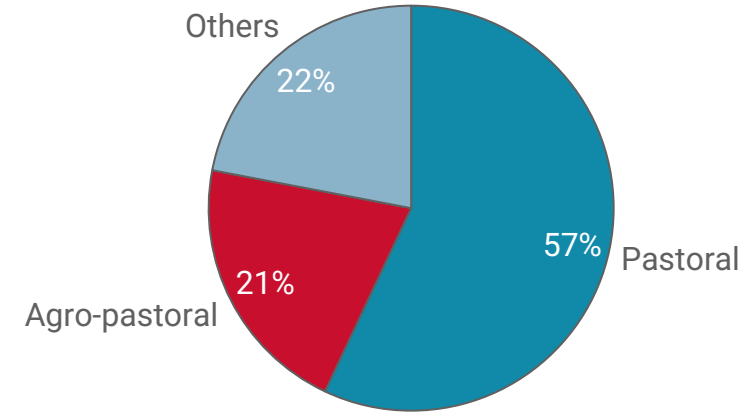
Hazards

Drought, Livestock pests and diseases, restricted access to dry season grazing, animal rustling, ethnic conflict

Endemic livestock diseases

No reported outbreaks

Population proportion by source of livelihood



Drivers of food and nutrition insecurity

Below normal rainfall

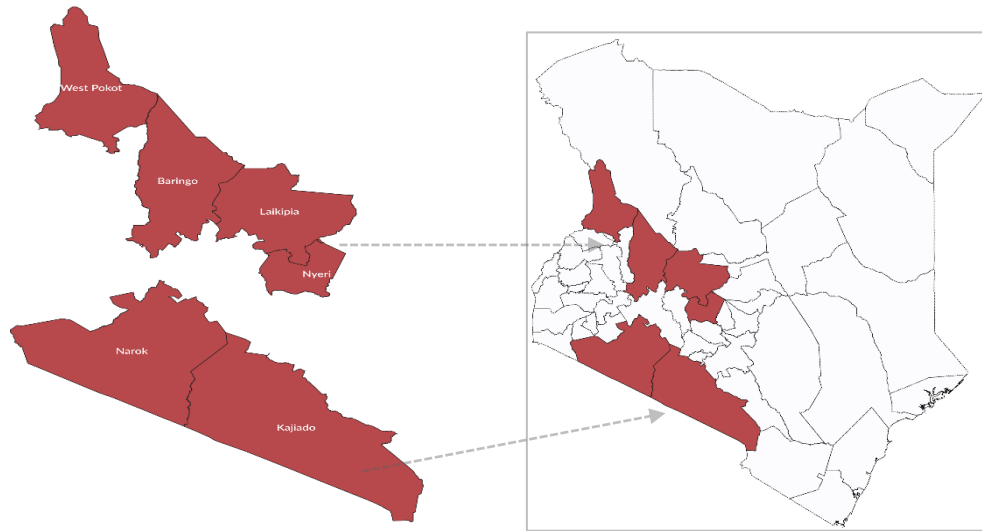
Resource - based conflicts and insecurity

Human and Livestock diseases

Whereas in the agro-pastoral counties, about a third engage in mixed farming as a source of their livelihood; 27% engage in pastoralism

Agro-pastoral counties population

Map of agro-pastoral counties



Agro-pastoral
West Pokot, Baringo, Kajiado, Narok,
Laikipia, Nyeri (Kieni)

Cash income

Food and cash crop sale, Livestock and livestock products, honey

Livestock

Goats, Sheep, Cattle

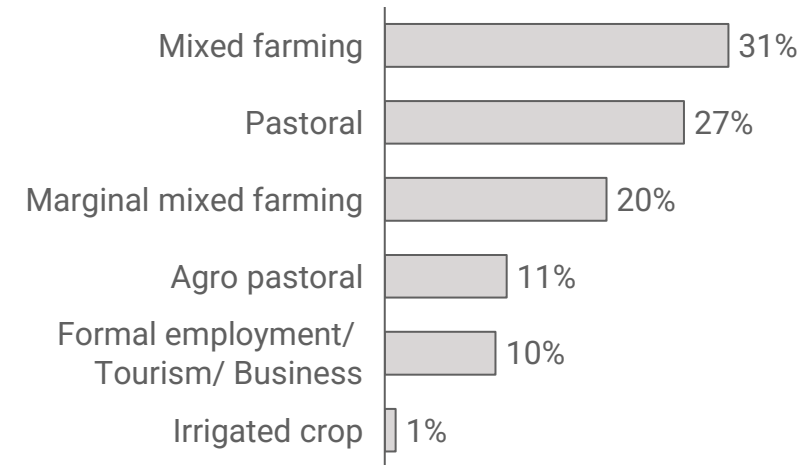
Hazards

Drought, Crop and livestock pests and diseases, restricted access to dry season grazing, animal rustling, ethnic conflict

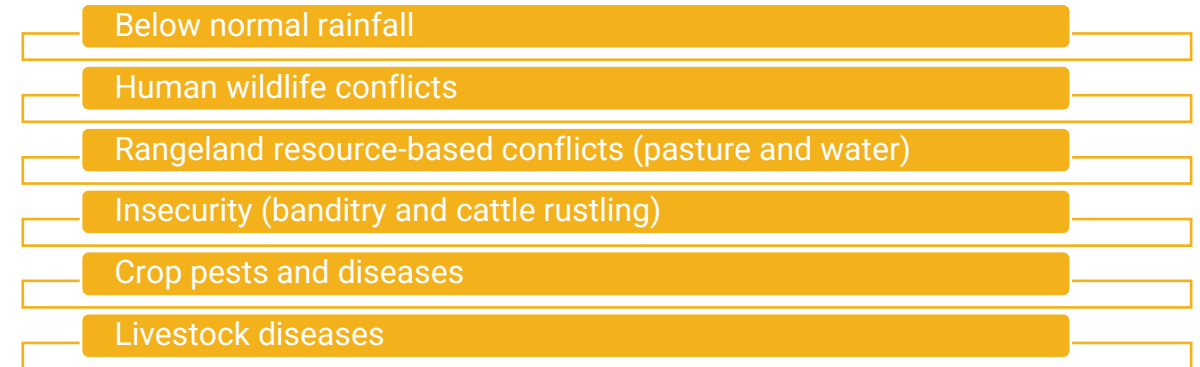
Endemic livestock diseases

CCPP,CBPP,LSD, FMD, Anaplasmosis and Enterotoxaemia

Population proportion by source of livelihood



Drivers of food and nutrition insecurity



Dalberg Research

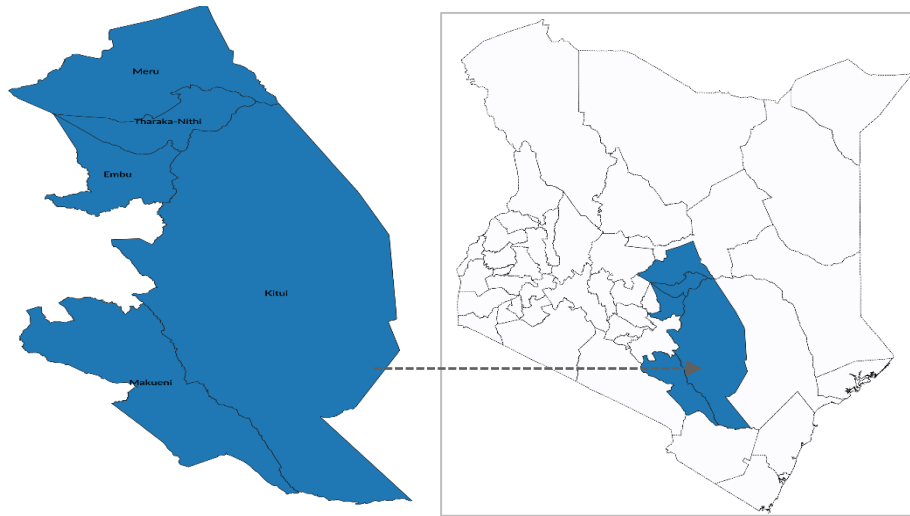
Source; NDMA, KFSSG short rains food and nutrition security assessment findings 2021. USAID, Famine Early Warning Systems Network (FEWSNET), Livelihoods zoning "plus" activity in Kenya 2011. Kenya National Bureau of Statistics (KNBS, 2019)

Notes; The counties clustering is from NDMA analysis; Marginal mixed farming – practice of crop and livestock rearing in low agricultural potential areas

In the Southeastern region about two thirds of the population practice marginal mixed farming as their economic activity

Southeastern counties population

Map of Southeastern counties



Cash income

Food and cash crop sale, Livestock and livestock products, honey

Livestock

Goats, Sheep, Cattle

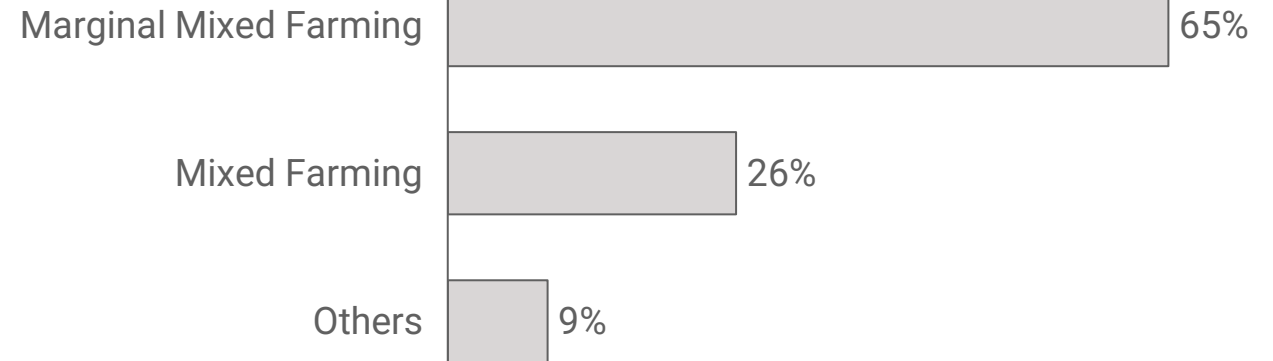
Hazards

Drought, Crop and livestock pests and diseases, restricted access to dry season grazing, animal rustling, ethnic conflict

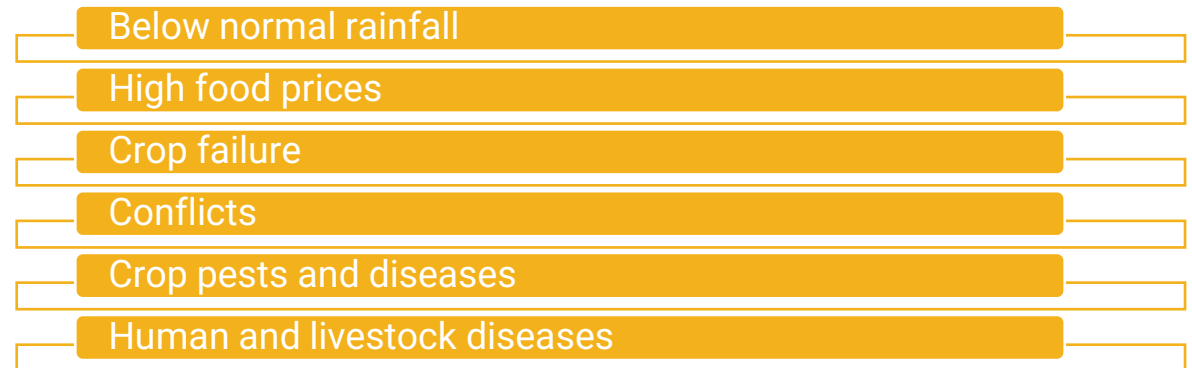
Endemic livestock diseases

CCPP,CBPP,LSD, FMD, Anaplasmosis and Enterotoxaemia

Population proportion by source of livelihood



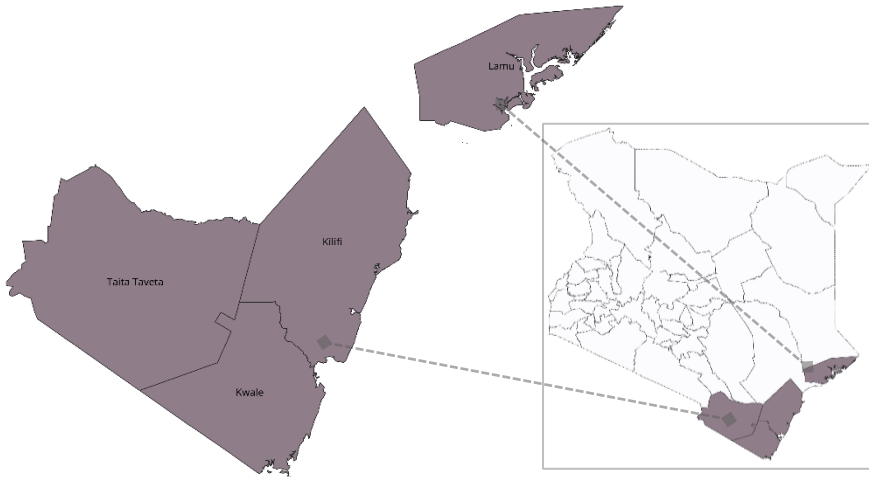
Drivers of food and nutrition insecurity



Mixed farming is the most common source of livelihood in the coastal marginal agricultural counties; this is practiced by more than half of the population

Coastal marginal agriculture counties

Map of coastal marginal counties



Cash income

Food and cash crop sale, Mangrove harvesting, Livestock and livestock products, honey

Livestock

Goats, Sheep, Cattle, Poultry

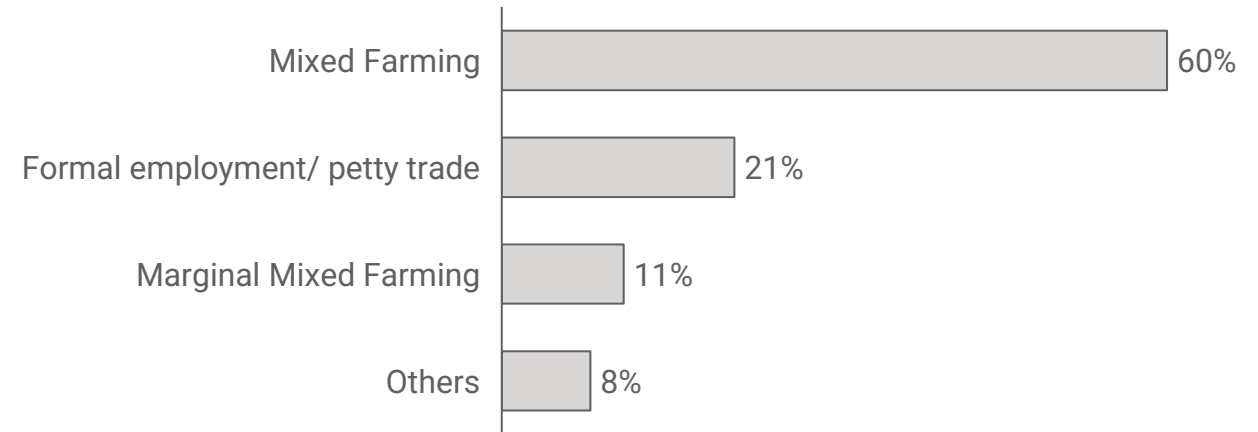
Hazards

Drought, Crop and livestock pests and diseases, malaria, water borne diseases, flooding

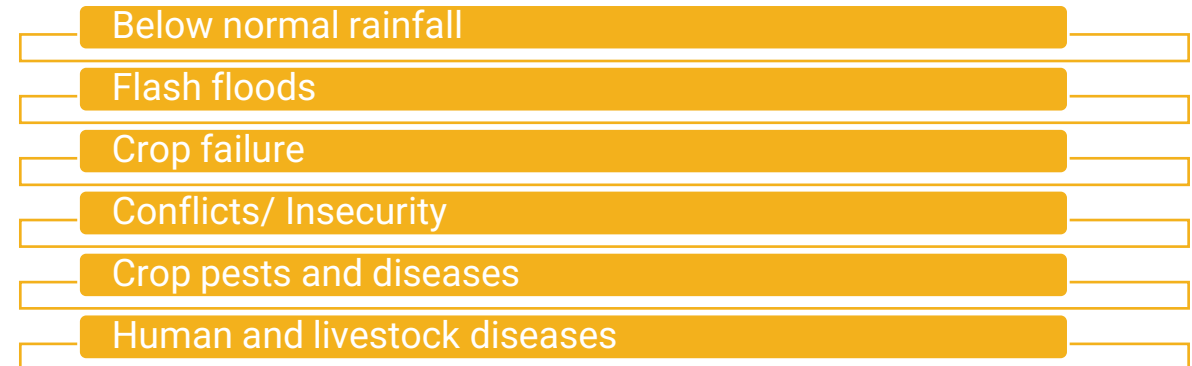
Endemic livestock diseases

ECF, Worms infection, CCPP, Mastitis, CBPP, LSD, FMD, Anaplasmosis and Trypanosomiasis

Population proportion by source of livelihood



Drivers of food and nutrition insecurity



PASTORALIST CHARACTERISTICS



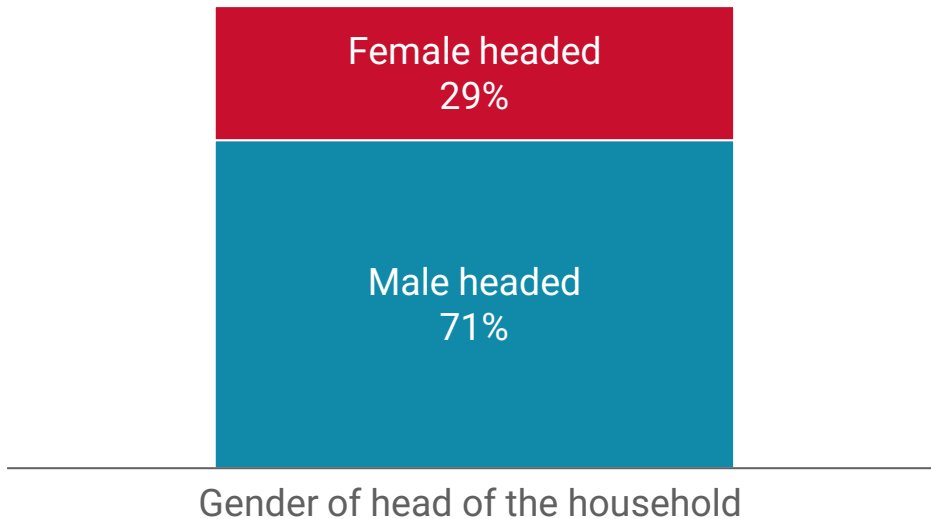
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More than two thirds of the pastoral households are male-headed; the average age of household head is 49 years with low education levels

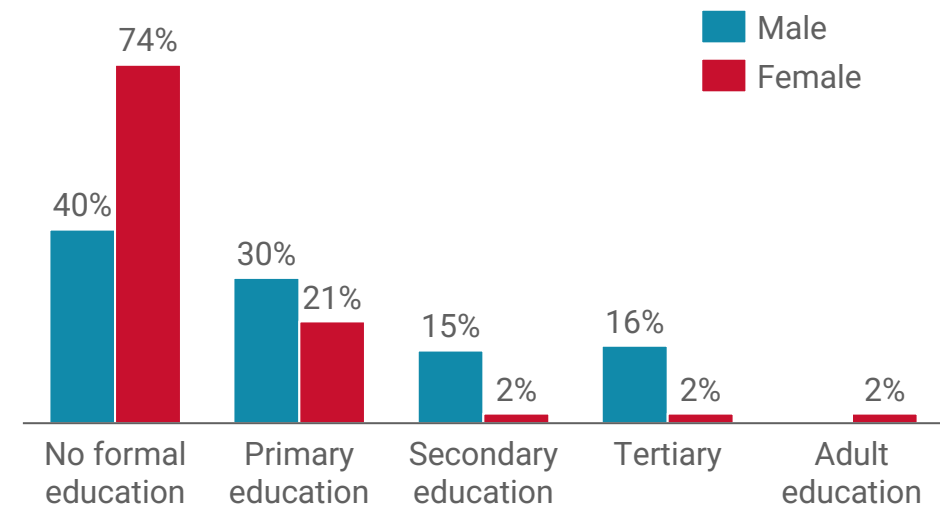
Gender of household head of pastoralists

% of gender of household head



Education of household head by gender

% of level of education



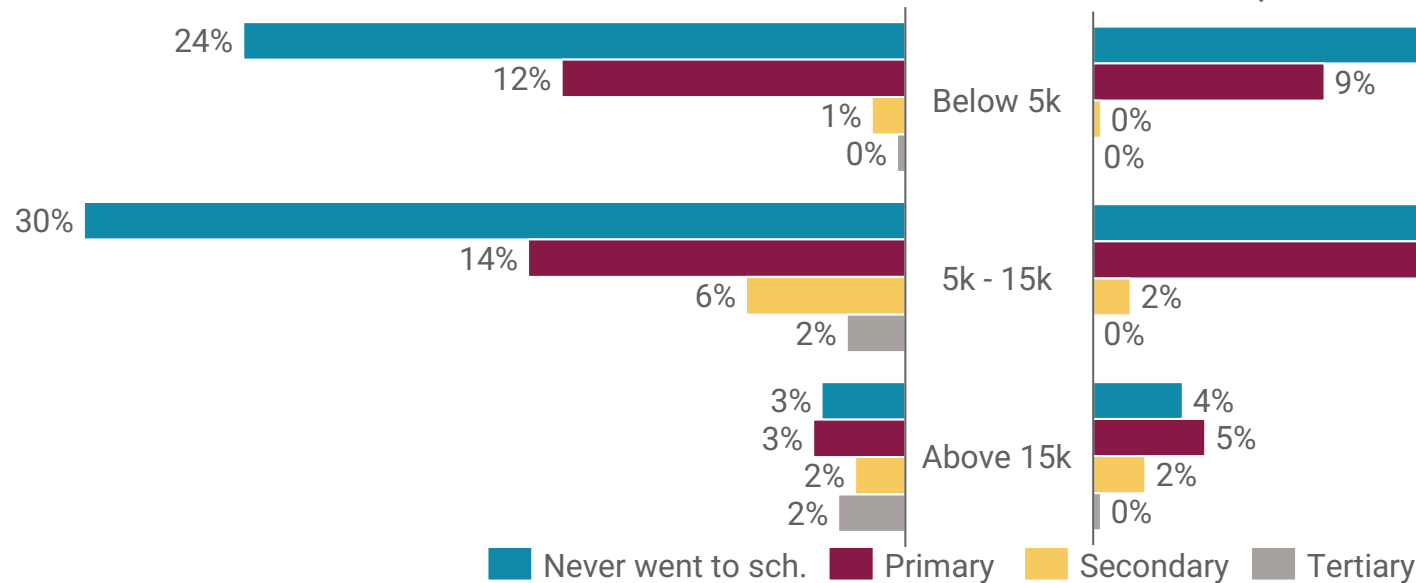
- The average household size for the pastoral households is 7 members
- There is disparity in education levels of household heads by gender; about three quarters of female household heads lack formal education
- The education level of the household heads is low: 50% of the household heads have no formal education.
- Education levels are lower for female than male household heads: 74% of female heads of households have no formal education compared with 40% for male household heads and the proportion completing primary and secondary education is higher for male household heads.

The pastoral communities are characterized by low and unstable incomes; more than 80% earn below KSH 15,000/month across gender

- Among pastoralists with no formal education, income did not vary with gender
- Pastoralist communities have low levels of education, which can impact their opportunities to generate income (World Bank, 2020).
- Women in pastoralist communities may face additional barriers to generating income, such as limited access to education and decision-making processes (ILRI, 2019)
- The relationship between education and income in pastoralist communities is complex and can be influenced by various factors, including market conditions, access to resources, and cultural norms (UN Women, 2021)

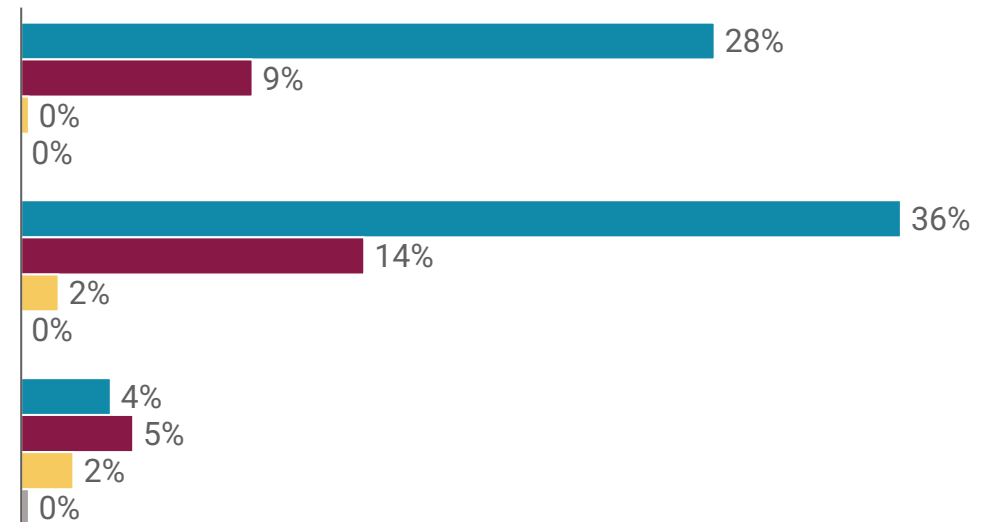
Income by gender – Male

% of respondent by education level and income



Income by gender – Female

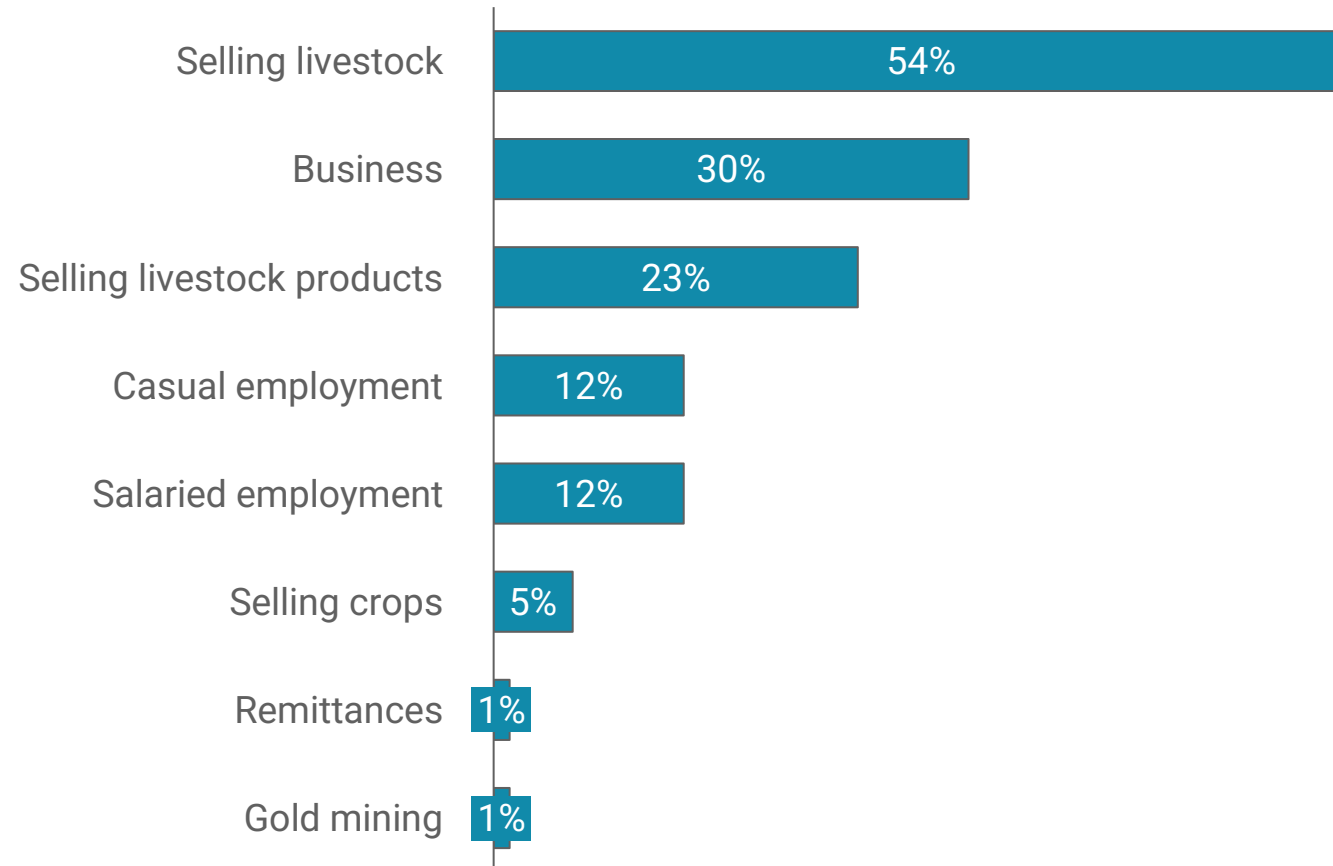
% of respondent by education level and income



Pastoralists generate income mainly through the sale of livestock and livestock products

Sources of household income for pastoralists

% proportion of respondents

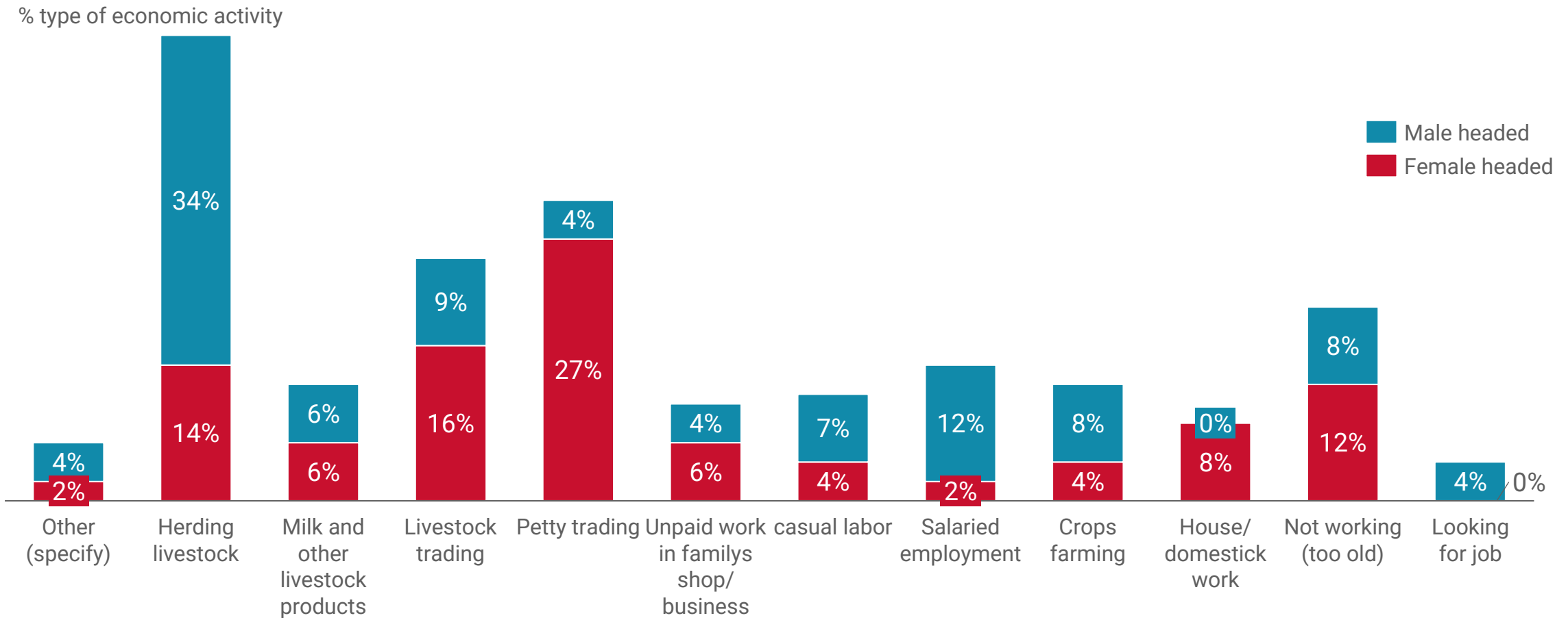


- A considerable share (30%) of the pastoralists get their income from businesses, particularly small businesses that help support the livestock value chains during times when there is low demand for their products.
- Casual and salaried employment also contribute to the incomes of households: each of these sources provide income to 12% of the households. These sources provide additional income to the households



More than a third of male household heads herd livestock as their main occupation while the females are likely to engage in petty trading

Main occupation of heads of household by gender



LIVESTOCK VALUE CHAINS



AGRIFIN

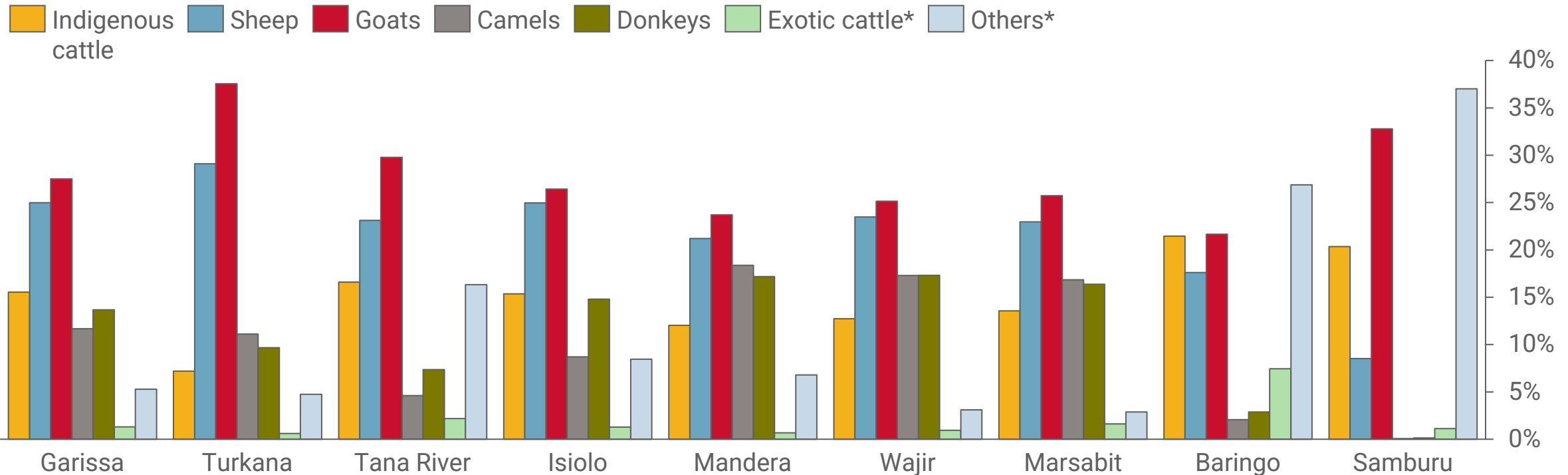
Dalberg Research

More households in arid counties rear goats, sheep, and indigenous cattle; Over a quarter of these households engage in goat and sheep farming

Arid

Distribution of households rearing livestock value chains across arid counties in Kenya

Proportion of households practicing livestock rearing within arid counties by type of livestock

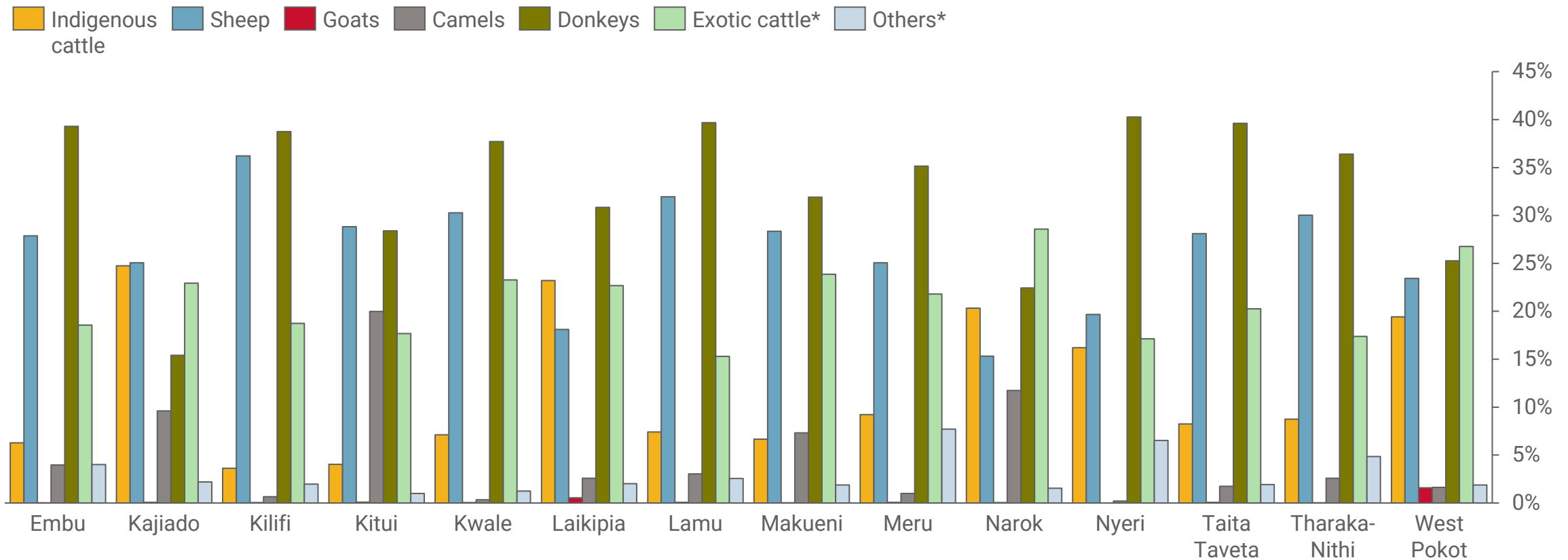


- The country's animal population comprises 18.8 million cattle (14.3 million beef cattle and 4.5 million cows), 26.7 million goats, 18.9 million sheep, 3.2 million camels, 44.6 million poultry, 1.9 million donkeys, 0.5 million pigs.

While majority of the semi-arid households rear donkeys and sheep

Distribution of livestock value chains across semi-arid counties in Kenya

Proportion of households practicing livestock rearing within semi-arid counties by type of livestock



ACCESS TO FINANCIAL SERVICES AMONG AGRO-PASTORALISTS AND PASTORALISTS



AGRIFIN

Dalberg Research

Formal and informal sources of finance are available to pastoralists

Current financial products, gaps, and models in Kenya

List of financial products available in pastoral areas in Kenya

Commercial banks model
(savings, safe boxes, loans provision, ATMs, interest free banking, and mobile banking through M-PESA)

Micro-Finance Institutions model (savings services, loan products, transfer, insurance, M-PESA services, and agent network)

Co-operative/SACCO model (Savings and loan financial products)

Informal Associations/VSLA/ Family, Friends and Sale of own livestock model
(savings and loan products)

Insurance model being considered but not yet implemented (Savings in terms of premium and reimbursement in case of loss of what is insured)

Grants from various stakeholders' model (Free financial support or Revolving Loan Fund).

Financial service providers in the pastoral areas include;

- (1) **Banks:** Bank Equity (bank for HSNP); Kenya Commercial Bank; Co-Operative Bank; First Community Bank
- (2) **Mobile cash:** M-Pesa (Safaricom); Airtel Money (Airtel); Sendwave
- (3) **Insurance:** APA Insurance (underwriter KLIP, underwriter IBLI); Takaful Insurance of Africa (formerly underwriting KLIP, IBLI) and Agent for Inclusive Insurance Development (AIID).



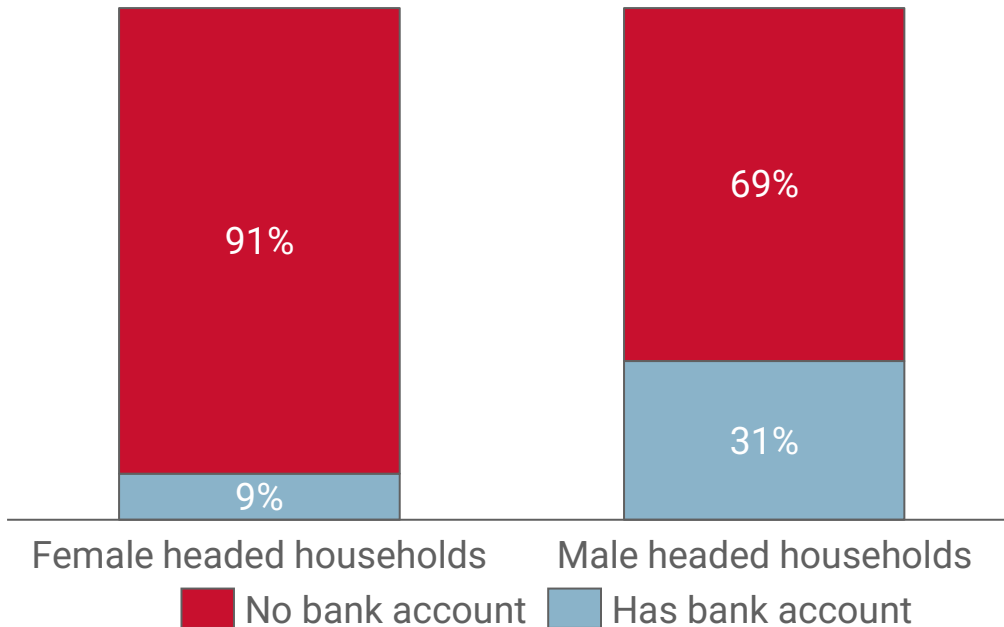
AGRIFIN

Dalberg Research

Female headed households are underserved on banking; 9/10 of female headed households do not have a bank account

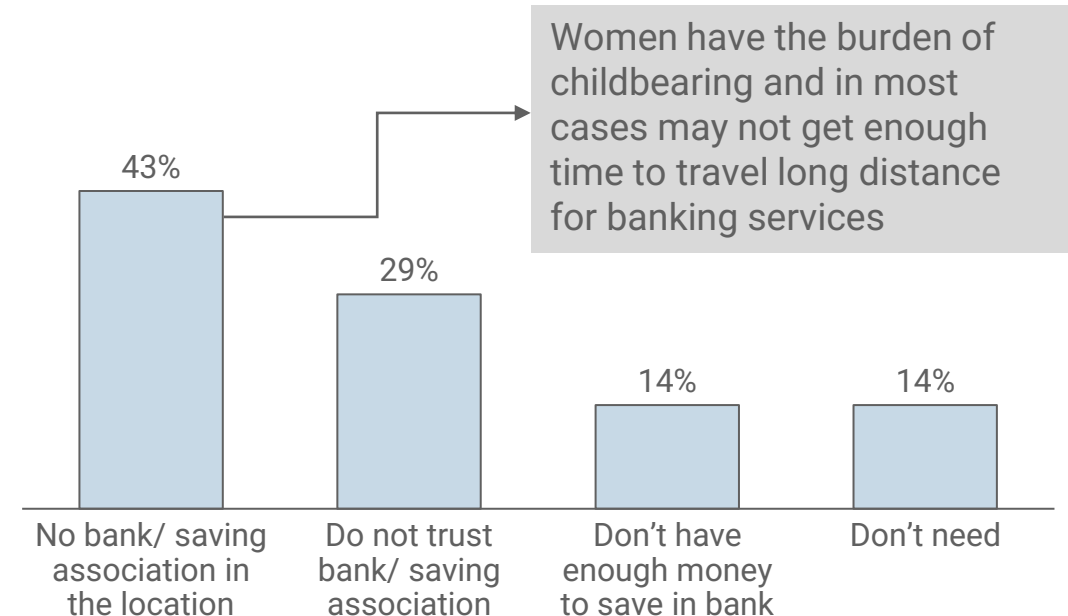
Households with bank accounts

% of households with bank accounts



Reasons for female headed households not saving in banks

% of respondents by reason

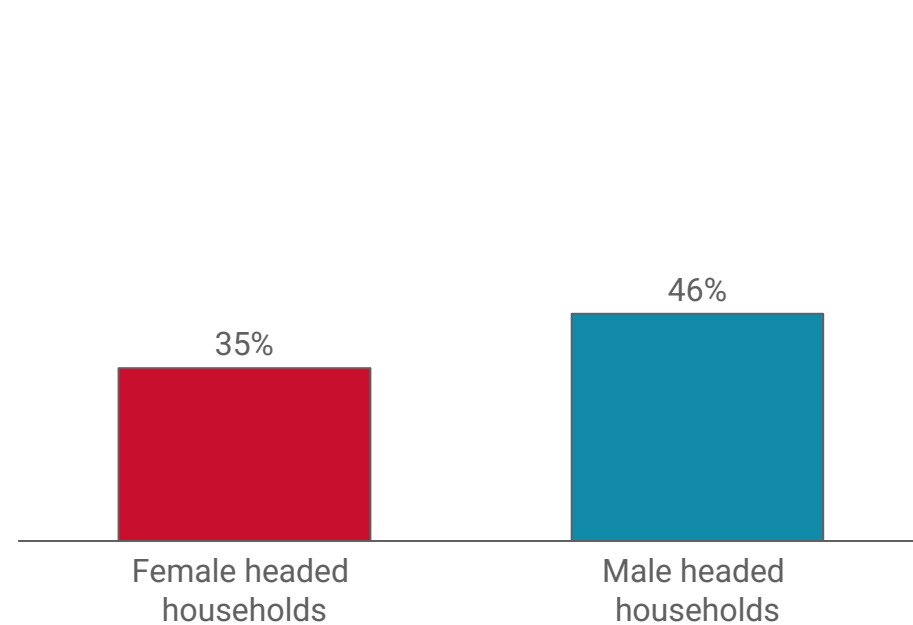


- Additionally, majority of the pastoralists feel they don't have adequate money to keep in the bank, lack of regular income or inability to afford bank services as well as low literacy levels.
- Male headed pastoral households added other reasons for not saving as; it was more costly than other options and that Islam prohibits interest

Of those who save, more male headed households have cash savings compared to their female counterparts

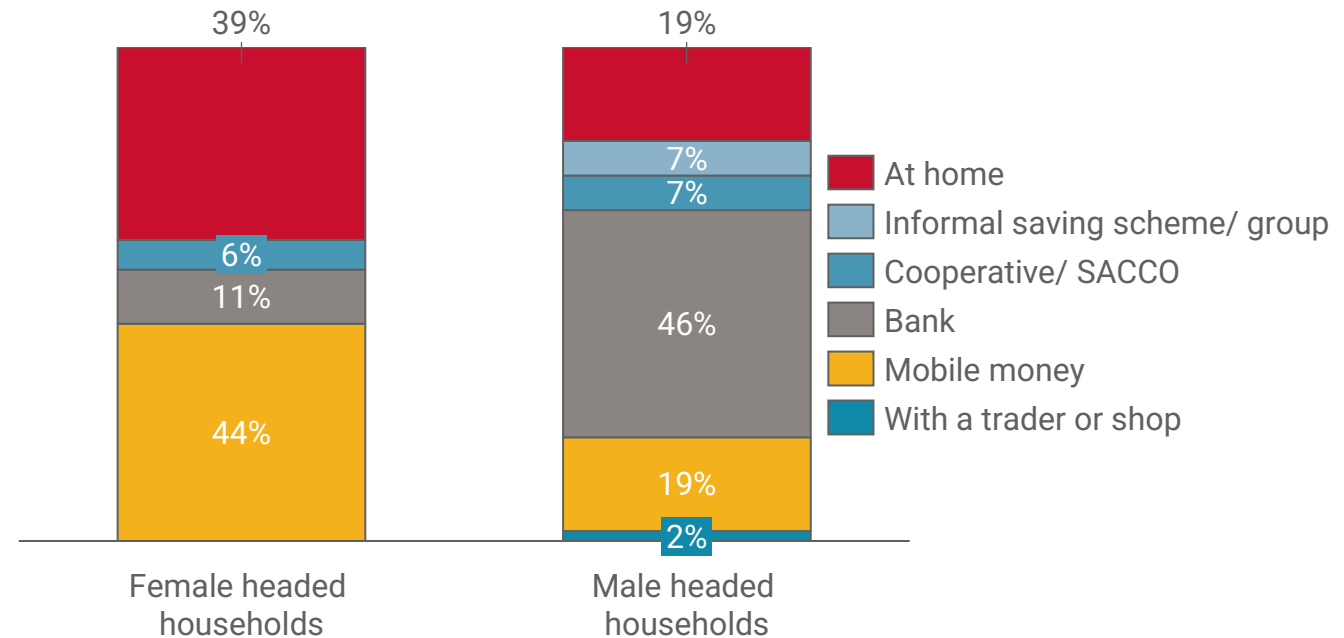
Cash savings by gender of household head

% of households with cash savings



Channels used to save by gender

% of pastoralists using specific saving channel



- Savings through banks is more than 3x among male headed households compared to female headed households
- There are differences in the saving channels between male-headed and female-headed households. Men mostly save in the bank whereas women save using mobile money and at home.
- Results also shows that in more than three-quarters of the households that have a bank account, it is registered on a man's name compared with women.
- Among households that reported they had cash savings, the average amount of savings was KES48,566. The median savings amount was KES20,000.



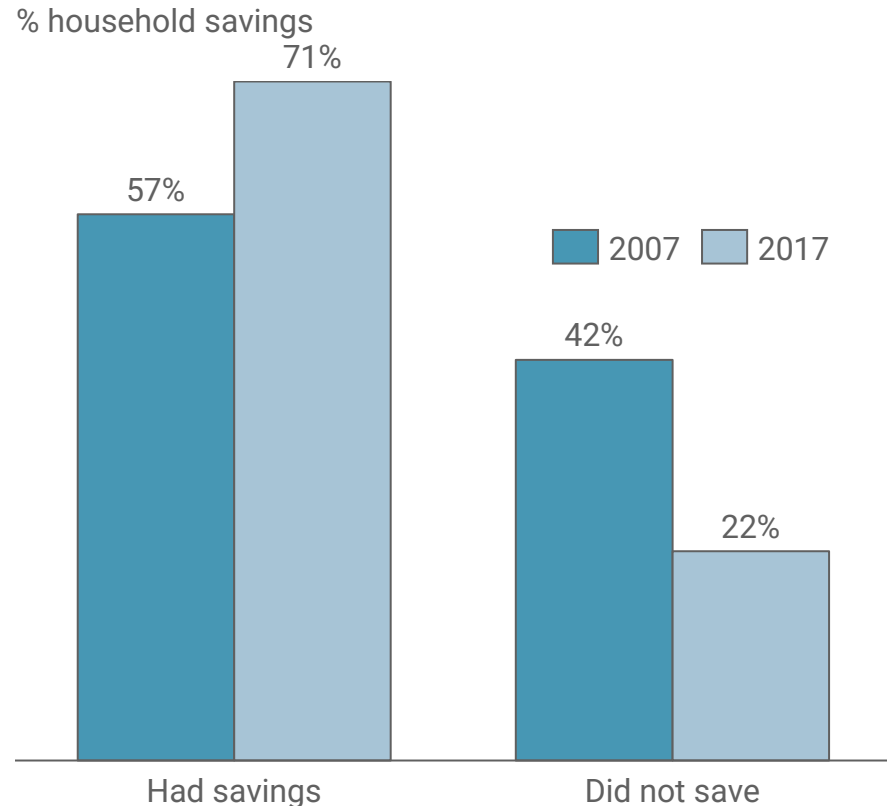
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Dalberg Research

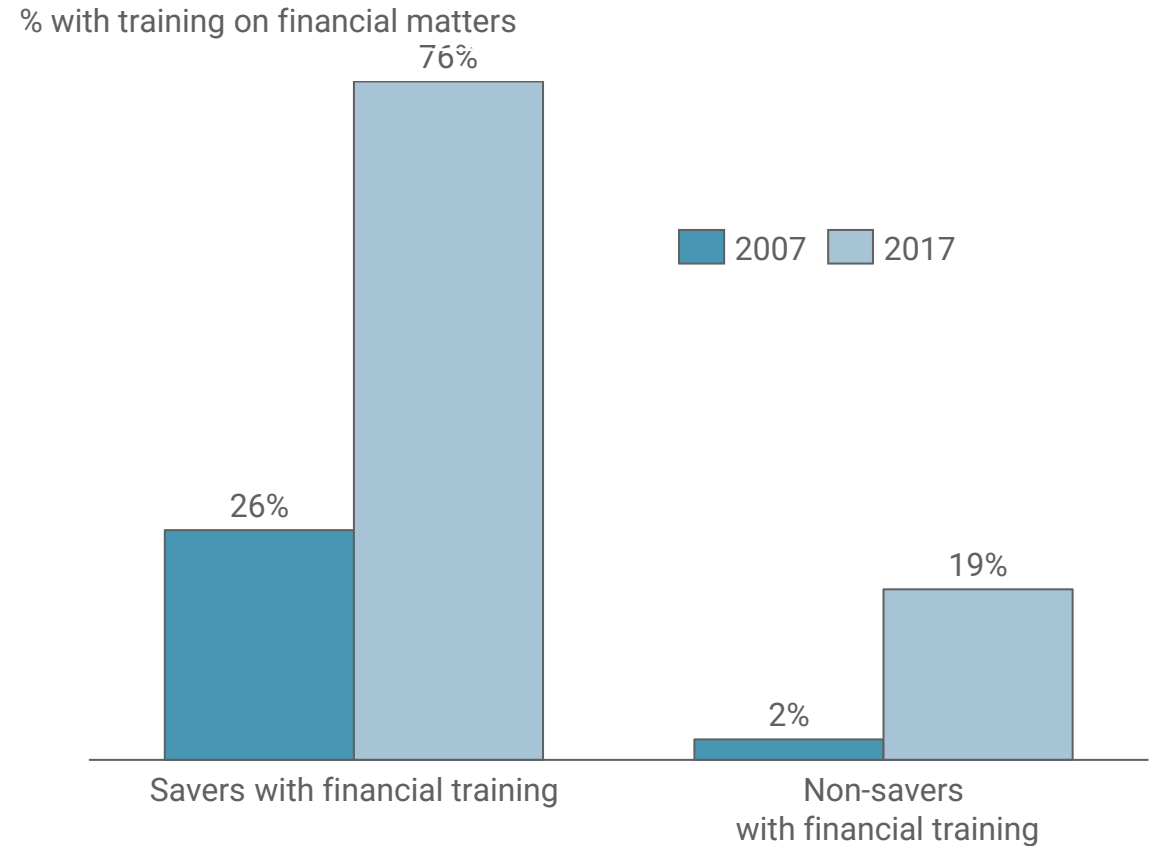
Agro-pastoral households with savings increased from 57% to 71% as a result of increased access to financial training between 2007 and 2017

- About a quarter of the households with savings in 2007 had received some form of financial training. This proportion increases immensely in 2017 as close to 80% who had received some financial training did save

Household savings in West Pokot



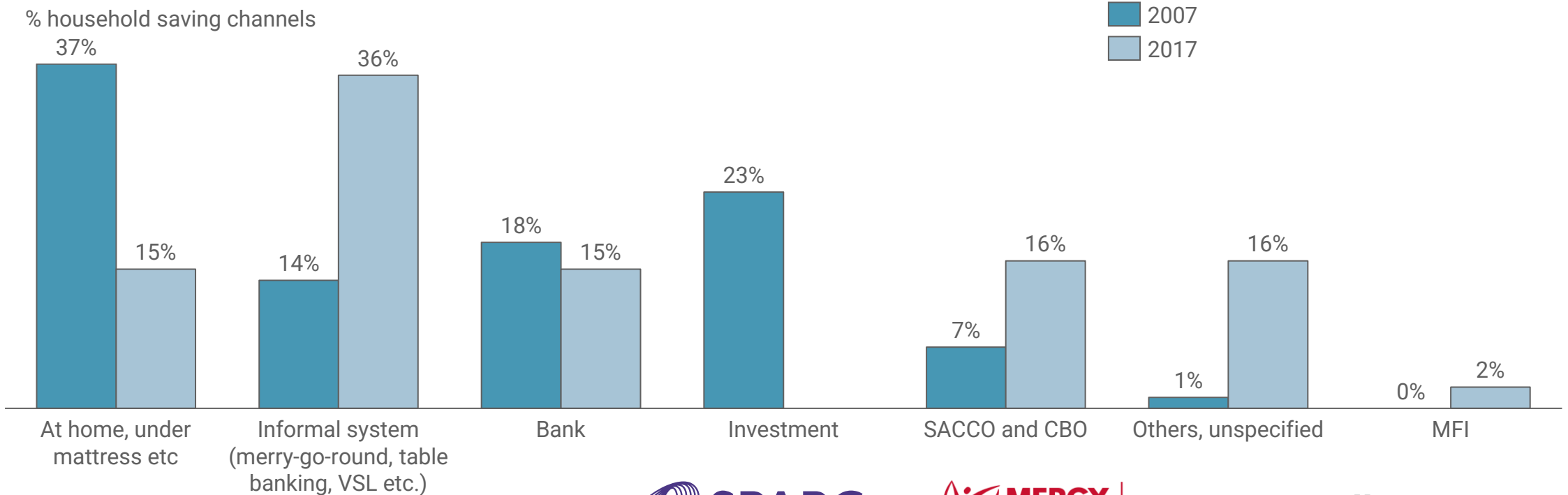
Savers and non-savers with training on financial matters



Also, there has been a striking improvement on saving from under the mattress to other informal forms overtime by the agro-pastoralists

- In 2007, households commonly saved money under the mattress, which was risky due to theft and offered no interest. Some pastoralists chose to invest in livestock as a form of savings. However, by 2017, savings groups had become a more popular option for households.
- The low level of savings with banks, SACCOs, and MFIs among agro-pastoralists and pastoralists is mainly attributed to the institutions' limited presence in rural areas, as they are mostly located in urban or town areas. Additionally, there is a lack of trust among these communities towards these financial institutions.

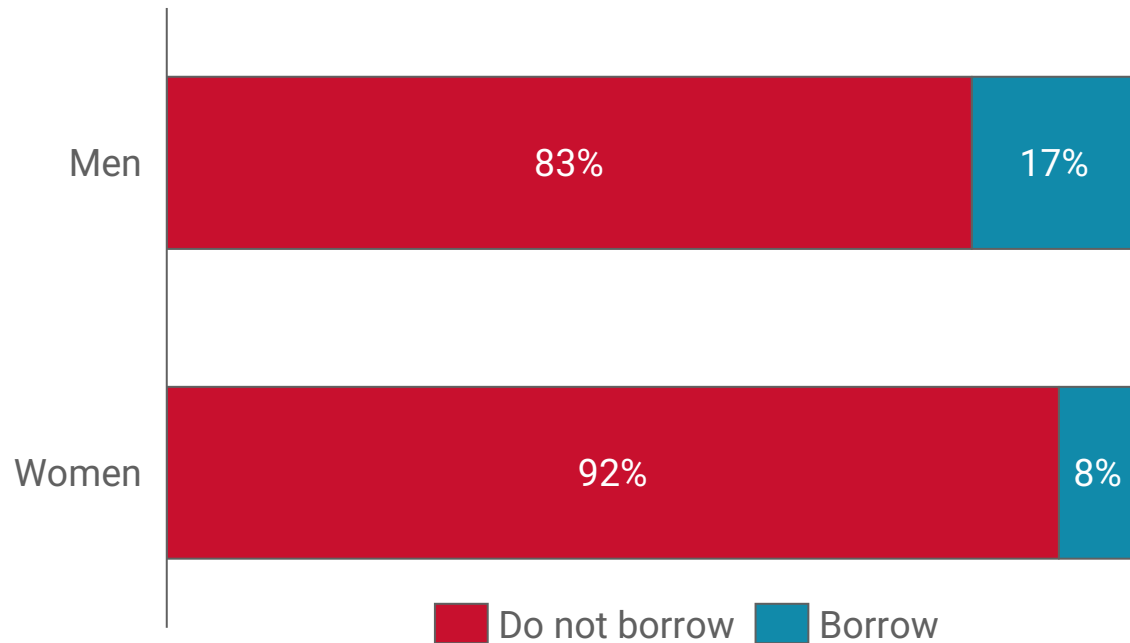
Household saving channels in West Pokot



Majority of the pastoralists (87%) do not borrow; friends and relatives are the preferred sources for those who borrow

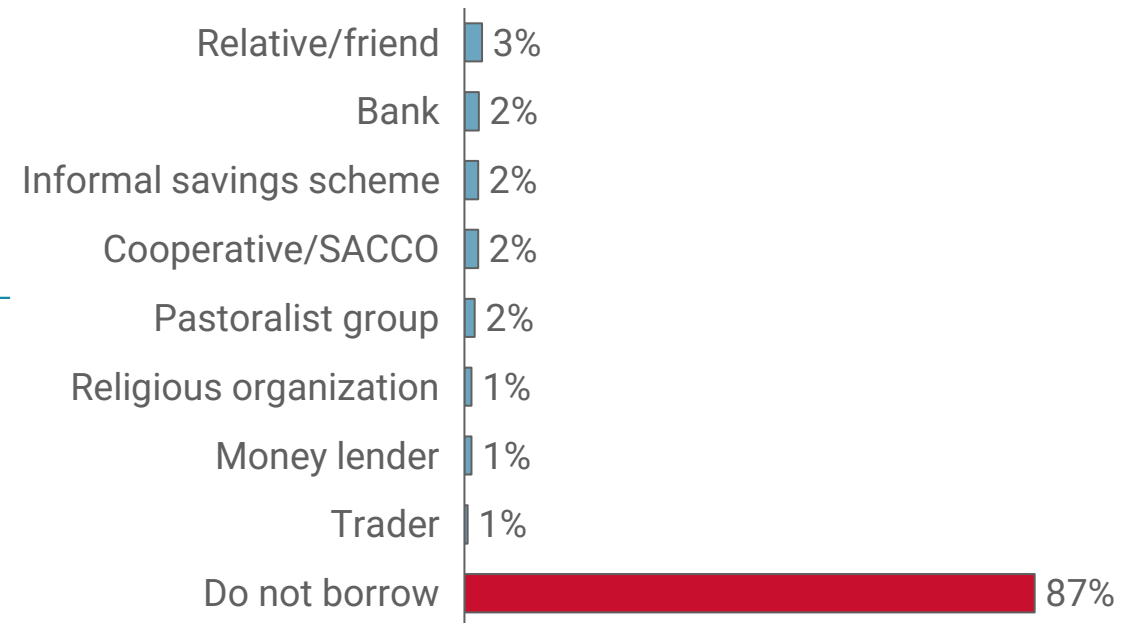
Proportion of pastoralists who borrow by gender

% pastoralists who borrow



Sources of credit for pastoralists

% sources of credit for pastoralists who borrow



- The median amount borrowed by pastoralists per year is KES 33,000 while the median amount received is KES 30,000
- The average loan repayment duration is ~6 months and a median of five months. The average interest rate charged on loans is 9.3% (median=7.5%).



AGRIFIN

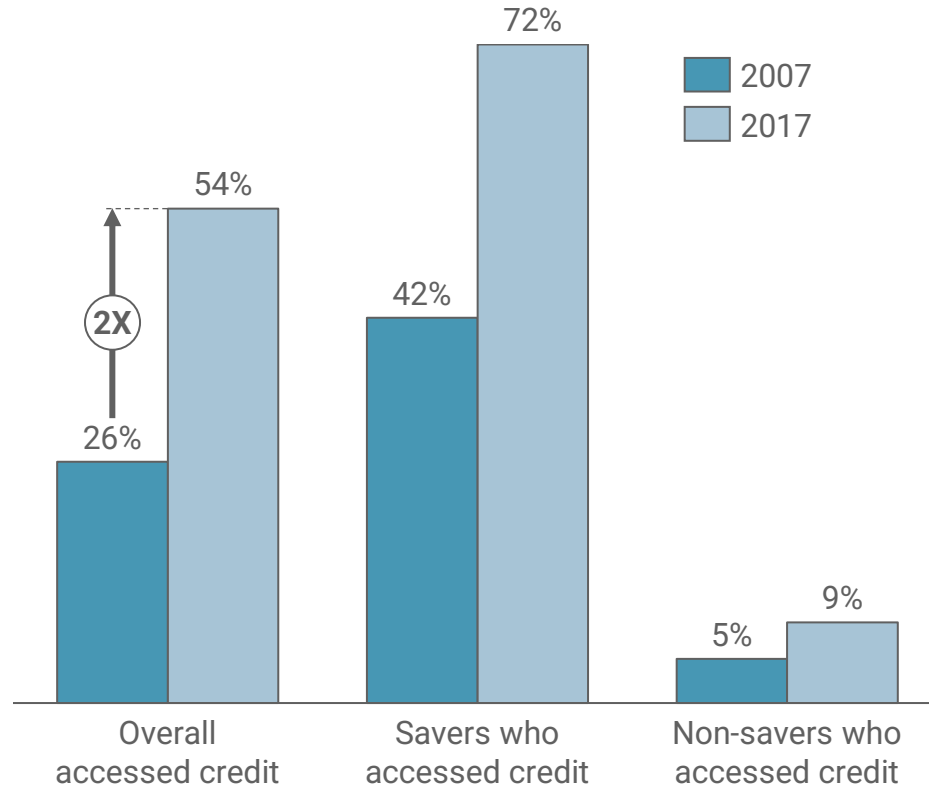
Dalberg Research

Of those who got access to credit, the number grew by 2x between 2007 and 2017; this is coupled with increased training on financial matters

- More than a third of the households with access to credit in 2007 had received some form of financial training. This proportion spiked to more than 90% in 2017 for creditors who had received some financial training

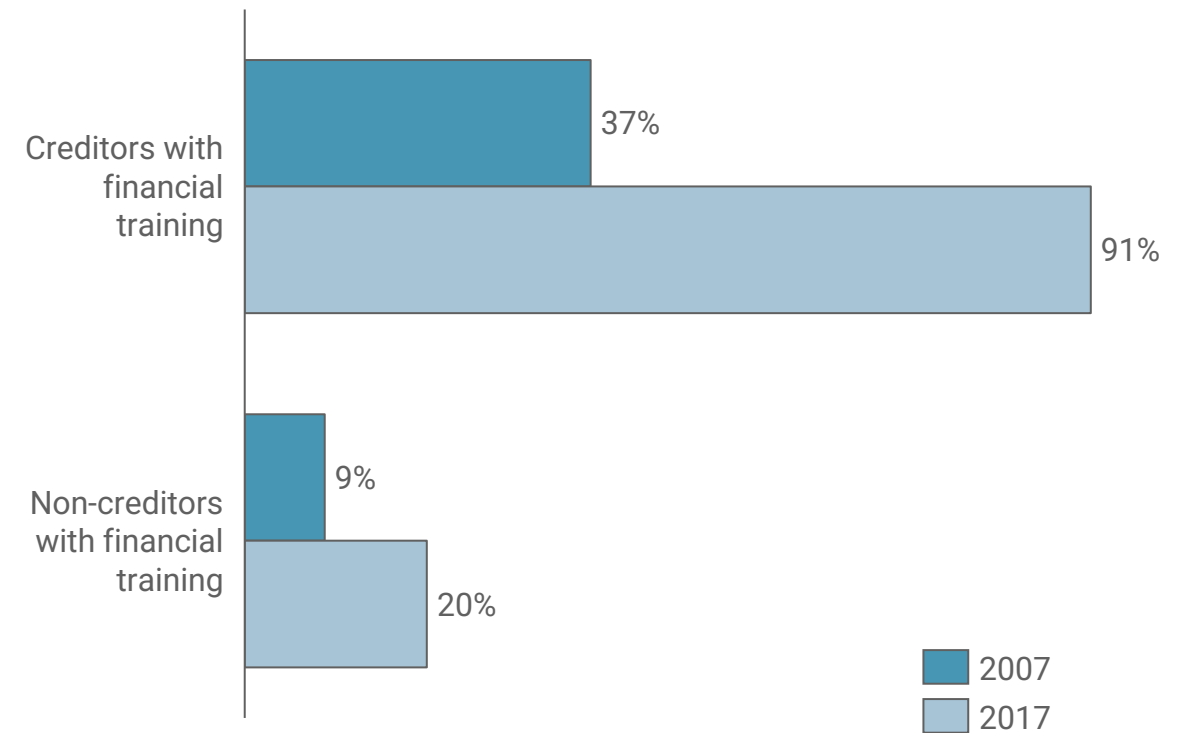
Household who accessed credit

% household with credit access



Creditors and non-creditors with financial training

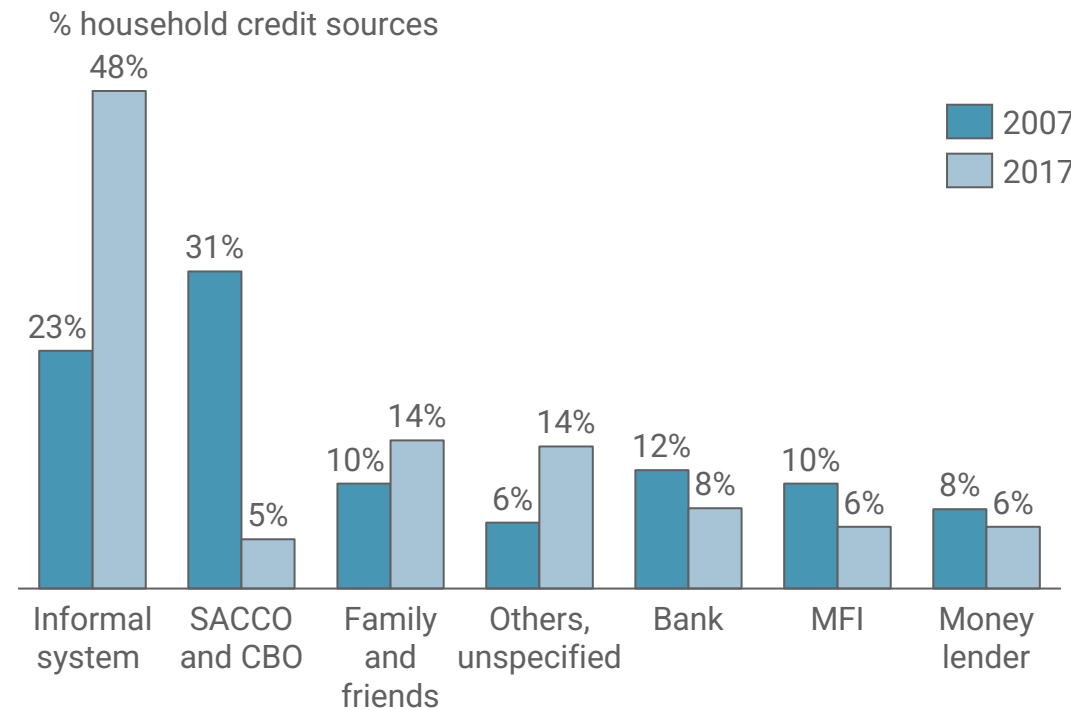
% with training on financial matters



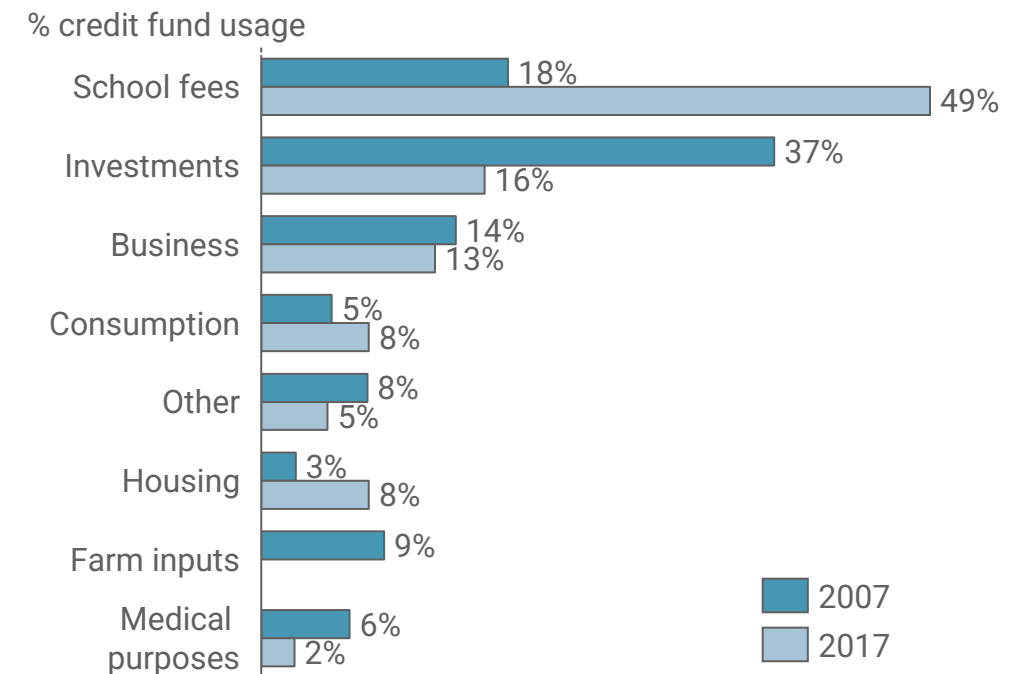
Agro-pastoralists and pastoralists generally use informal systems to access credit; close to half of the credit acquired is used on school fees

- Interestingly, SACCOs and CBOs were the most common sources of credit in 2007. This changes to informal systems (~48%) such as VSLs (Village Savings and Lending) in 2017 since the agro-pastoralists had fallen out of favour with the SACCOs and CBOs
- Undoubtedly, investment purposes (on-farm or off-farm activities such as business) was the predominant use of finances in 2007. This takes a twist in 2017 to school fees considering the challenge with meeting school fees for households with many children especially in secondary or tertiary levels

Credit sources in West Pokot



Use of Credit fund in West Pokot



ACCESS TO INFORMATION SERVICES AMONG AGRO-PASTORALISTS AND PASTORALISTS



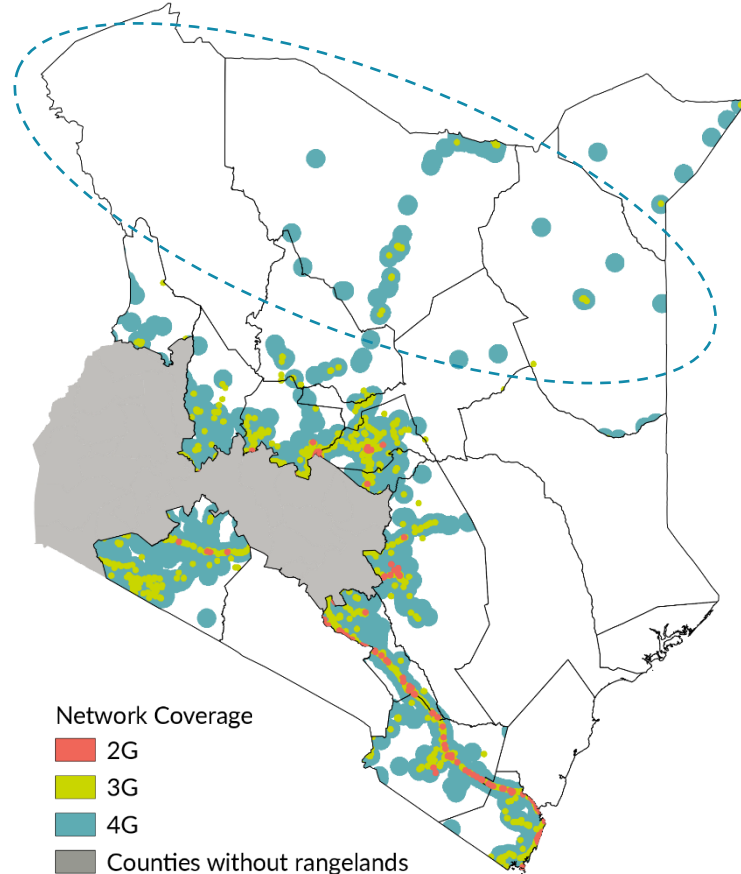
AGRIFIN

Dalberg Research

Pastoral counties in northern and eastern Kenya, have poor digital infrastructure to support cell phone and internet utilization

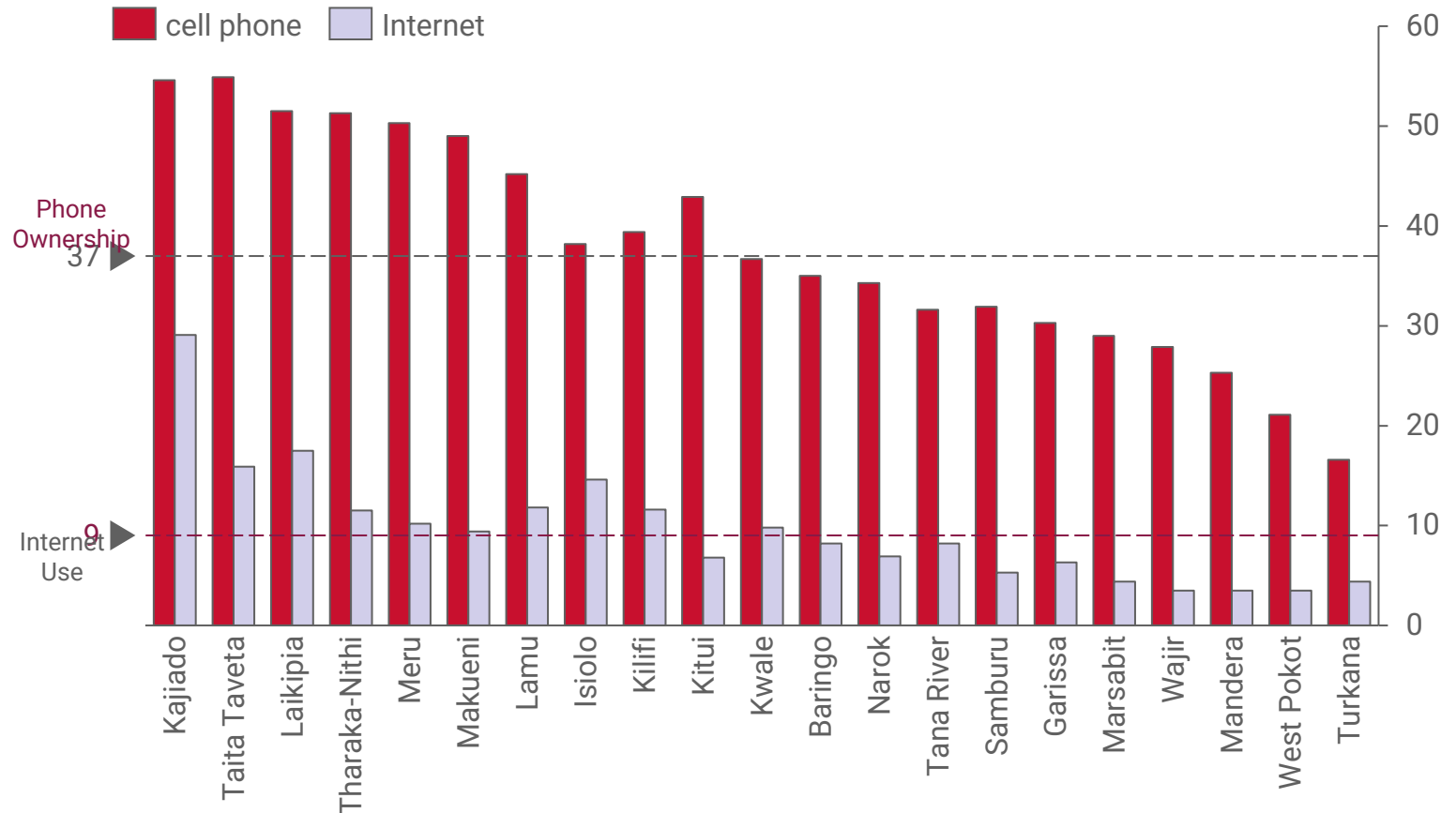
Network coverage

Coverage by type network



Digital penetration in counties dominantly rearing livestock

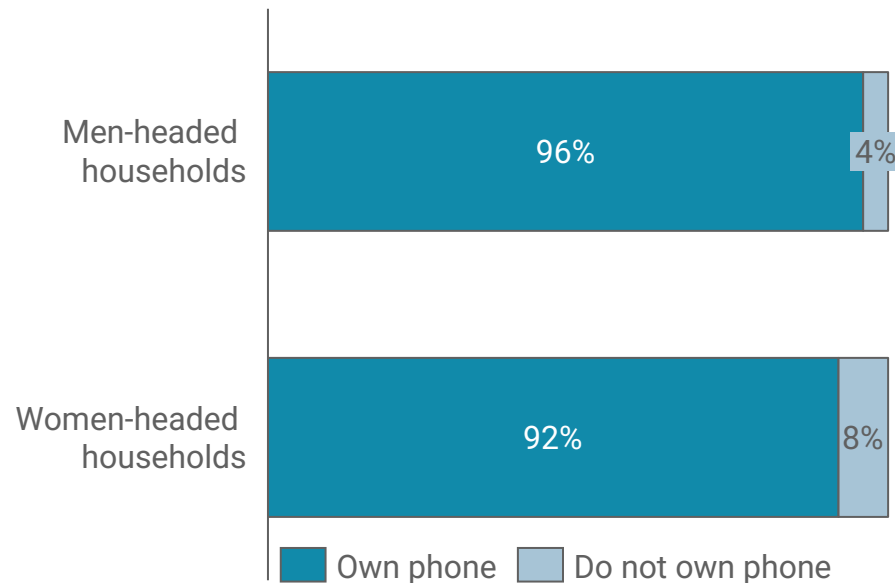
Proportion of internet use and mobile ownership among livestock keeping households



Pastoral households have at least one household member owning a cellphone; nearly all the phones owned have mobile money

Household phone ownership

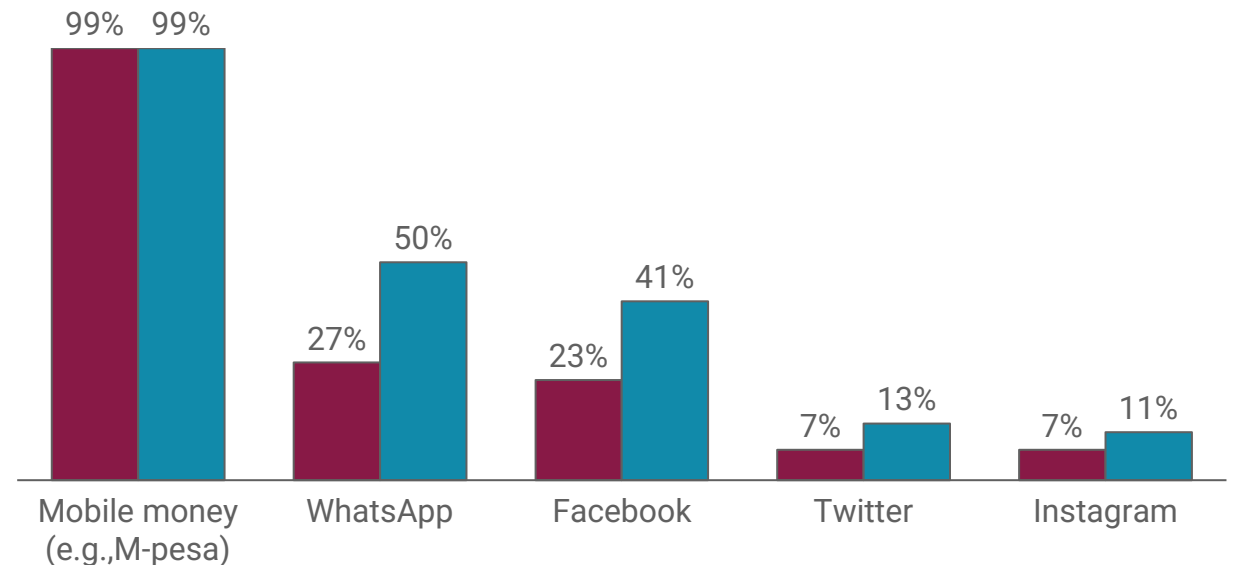
% household phone ownership



Feature of household phones

% features of household phones

Women with phone (n=255) Men with phone (n=235)

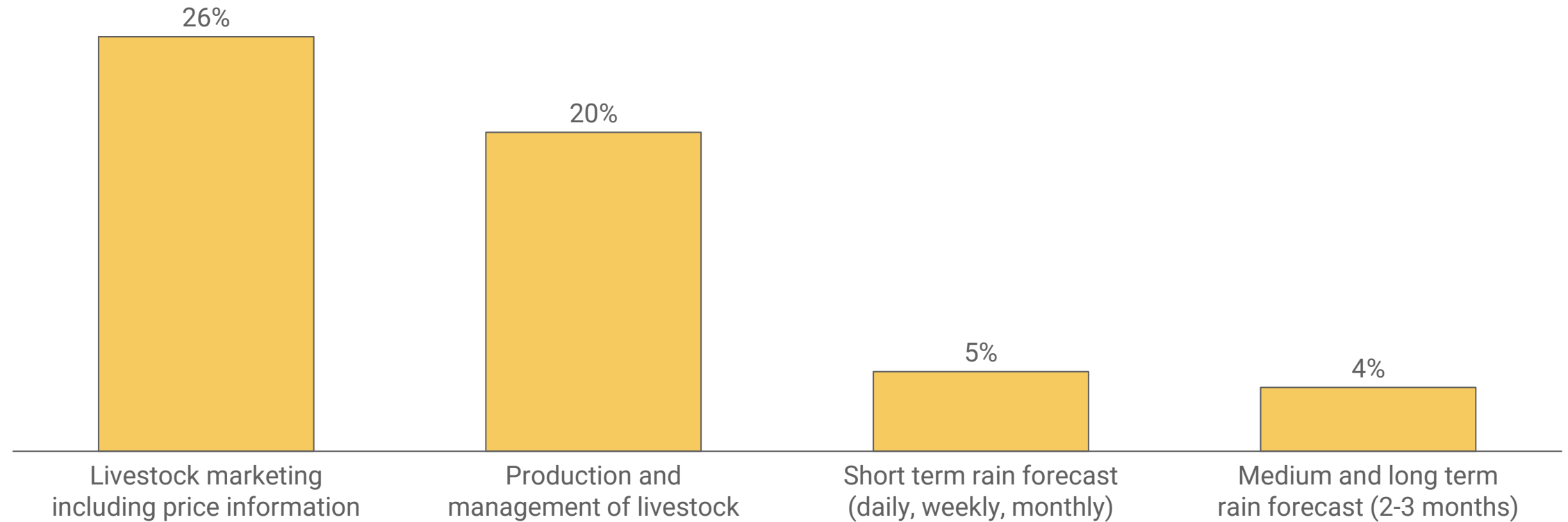


- The median amount spent by phone owners per week is KES300, with 63% of the expenses going towards airtime only, 36% towards both airtime and internet bundles, and 3% towards internet only. 77% of households with phones did not report any connectivity issues.
- There are differences in other phone features between male-headed and female-headed households. Significantly less female-headed (27%) than male-headed households (50%) have phones with WhatsApp. This is similar to Facebook, twitter and Instagram

More than a quarter of pastoralists receive information about markets including prices

Household access to information

% household by type of information



One-fifth of the households have access to information about livestock production and management. However, access to weather-related information is low; only 5% of the households have access to short-term weather forecast, and the proportion receiving medium-term and long-term forecasts is only 4%.

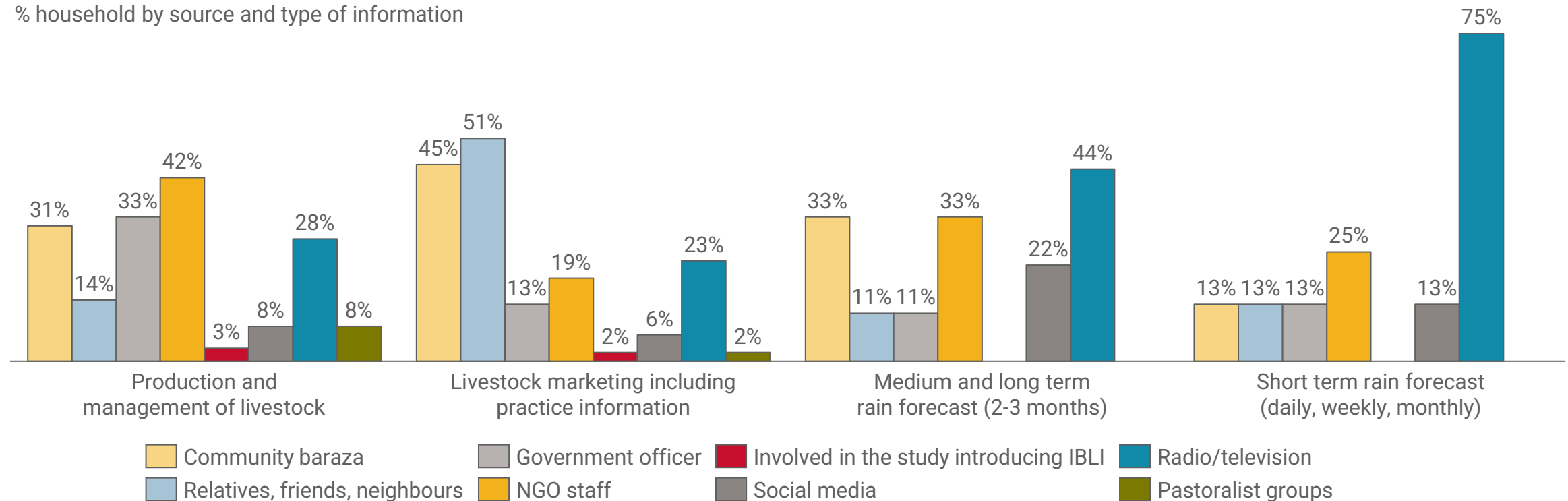


Radio/TV and Community barazas are the most used sources of livestock information

- Sources of information on livestock production and management for pastoral households include NGO staff, government officers, community barazas, and radio/television
- Pastoral households primarily access information about livestock marketing through their social network of relatives and friends and community gatherings, while weather forecasts are mainly obtained from radio and television broadcasts.

Sources of information by pastoralist households

% household by source and type of information

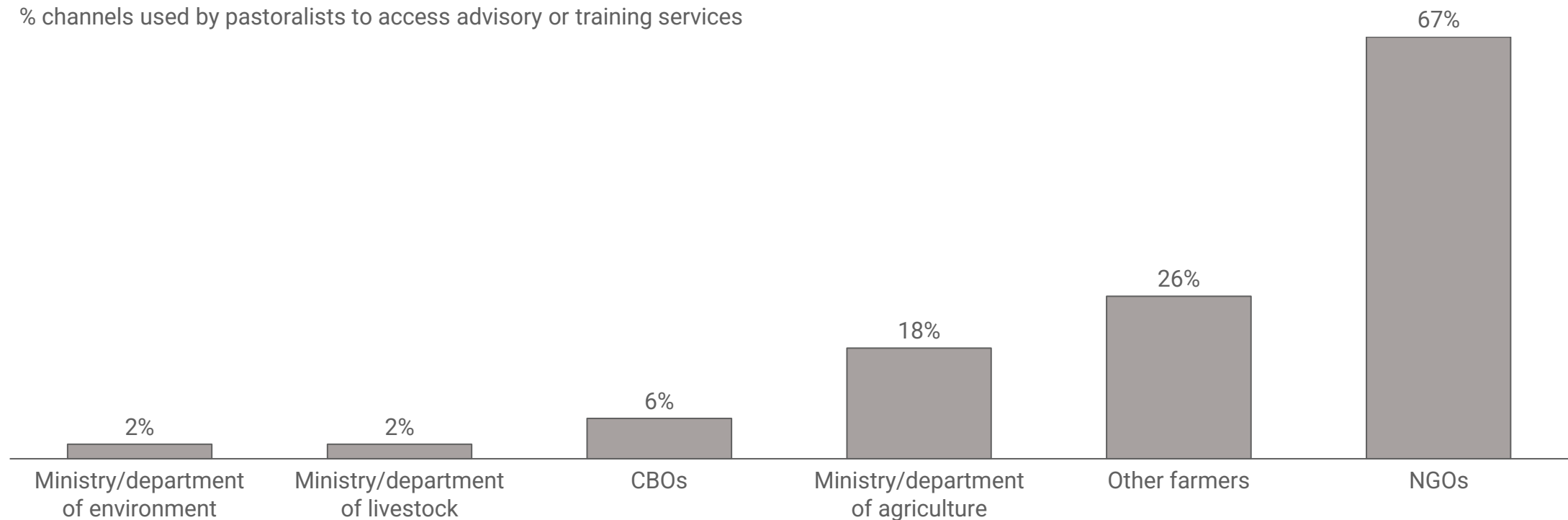


Two-thirds of pastoralists access extension and advisory services from NGOs

- While NGOs are the primary source of training for pastoralists, farmer-led trainings also account for a significant portion, and government agencies such as the Ministry/Department of Agriculture have a smaller role.
- The training is delivered through a variety of approaches, including classroom-based instructions, practical demonstrations, and educational tours.

Channels used by pastoralist to access advisory or training services

% channels used by pastoralists to access advisory or training services



Source: African Research and Economic Development Consultants (AFREDEC), 2022. ILRI, USAID Kenya Accelerated Value Chain Development Program (AVCD)-Livestock component, Analysis of livestock and fodder value chains in arid and semi-arid lands in Kenya, 2018.

Notes: KAVES data, n = 3370

Traditional and conventional methods such as herders and local chiefs are the top sources of pastoralists' information

Current Information sources	❖ Mostly, traditional and conventional methods i.e., herders, local chiefs, vet clinics are the top sources of information. Herders and traditional scouts were the major sources of information to pastoralists.
Development partners	❖ Development partners such as USAID, GIZ, ILRI and FAO also acted as sources of information.
Frequency of receiving information	❖ Frequency of receiving information varies with type of information. Pastoralists would generally want to receive this information daily or weekly. For information on livestock markets especially during drought, pastoralists need information on terminal markets.
Modern information methods	❖ Radio and phone have increasingly supplemented traditional methods. Pastoralists are willing to embrace modern technological methods of receiving accurate up to date information through calls, SMS, IVRs, WhatsApp etc. They however would prefer dissemination of information about prediction of drought to be done via radio.

However, KAZNET and AfriScout are some of the digital platforms that collect and disseminate agricultural and weather information to pastoralists

Mobile-based data collection and dissemination systems for pastoralists

Mobile based data collection and dissemination systems

System	Developer	Primary Scope	Type of information	Ground Data collection capability	Data dissemination capability	Area of application	End Users
KAZNET	ILRI (research institution)	Development & commercial Prototype piloting	Livestock Market information collection and provision. Future extension to rangeland condition, feed, and forage, veterinary services.	Yes, crowd sourcing technology for Mobile-based data collection	Under development, through mobile app/SMS/radio	Pastoral systems	Pastoralists and Institutions
AfriScout	PCI (NGO)	Development & commercial Advanced piloting	Satellite-based vegetation condition in grazing areas, surface water availability, and alerts on diseases, conflicts, water etc.	Yes, alerts from users (diseases, water, conflicts, etc.)	Yes, rangeland condition maps through Mobile app	Pastoral systems	Pastoralists



Source: ILRI, CGIAR,CTA, Exploring pastoralists' demand for information and channels for its effective delivery, 2018 – Qualitative analysis conducted in Isiolo (Oldonyiro, Kina and Isiolo Town) and Marsabit (Mereille) through Key Informant Interviews and Focus Group Discussions

Notes; Though Marsabit and Isiolo counties of Northern Kenya were the focal sites for this study, the revealed insights speak more broadly to the Kenyan pastoral systems.

The livestock producers consider information on pasture/feed, water for animals, livestock market and livestock diseases as the most important

Information need, frequency, source, channel, and willingness to pay

Olodonyiro Subcounty

Rank	Information	Frequency	Source	Media/Channel	Willingness to pay
1st	Forage availability	Weekly	Vet clinics, ILRI, NDMA, Church	Radio, phones (voice or SMS) herders, hearsay, noticeboard, barazas	Yes
2nd	Water (for animals) availability	Daily	Local chiefs, herders, and local/central government	Barazas, Radio, community members	Yes
3rd	Feed supplements	Monthly	NDMA, County and national gov't, NGOs, Church	Radio, Phones (SMS and Voice), Print media	Yes, whenever needed
4th	Livestock market (livestock prices, commodity prices, market functional status, etc.)	Weekly	USAID, ILRI, County and National gov'ts, C/y members, traders	Radio, Phones (SMS and Voice), Social media, ILRI	Yes
5th	Livestock disease outbreaks	Monthly	Vet clinics, USAID, FAO, VSF, NRT, Church, local and national gov'ts	Radio, Phones, Social media, posters and other print media	Yes, 'automatic'
6th	Livestock diseases	Monthly	Vet clinics, USAID, FAO, VSF, NRT, Church, local and national gov'ts	Radio, Phones, Social media, posters and other print media	Yes
7th	Livestock Insurance	Monthly	Local and national gov'ts, insurance companies, ILRI, barazas*, church	Phones, mainly SMS, social media, TV, face-to-face, hearsay	Already paying



AGRIFIN

Dalberg Research

Source: ILRI, CGIAR,CTA, Exploring pastoralists' demand for information and channels for its effective delivery, 2018 – Qualitative analysis conducted in Isiolo (Oldonyiro, Kina and Isiolo Town) and Marsabit (Mereille) through Key Informant Interviews and Focus Group Discussions.

Notes; Barazas are community gatherings in Kenya to decide or plan on matters in relation to different socio-economic and political issues

Information on insecurity hotspots, particularly around the areas where pastoralists often access pasture and water topped the list of required information in Marsabit

Information need, frequency, source, channel, and willingness to pay

Kina Subcounty

Rank	Information	Frequency	Source	Media/Channel	Willingness to pay
1st	Insecurity	Daily	Local chiefs, elders, herders and c/y members through hearsay	Phone (voice and SMS), social media, hearsay, radio	Yes
2nd	Water and Pasture	Daily	Herders, elders and local chiefs	Public announcements, barazas, AfriScout, mosque, hearsay (face-to-face – F2F)	Yes
3rd	Livestock Disease	Daily	Herders, elders, Veterinary chief, local chiefs and hearsay	Elders, phone, F2F, AfriScout, Radio	Yes
4th	Livestock Marketing	Weekly	Business people (traders), producers, elders, vet clinics	Phone, hearsay/F2F, Radio, print media	Yes
5th	Drought	Quarterly	Indigenous knowledge (traditional scouts), c/y members	Phone, F2F, indigenous knowledge/elders, radio, AfriScout	Yes, big yes
6th	Transportation	Daily	Drivers, traders, commuters, community members	Phone, Radio, hearsay/F2F, wedding, mosque	Yes
7th	Livestock Insurance	Monthly	Local chiefs, barazas	Radio, Phone, TV adverts	Already paying



Source: ILRI, CGIAR,CTA, Exploring pastoralists' demand for information and channels for its effective delivery, 2018 – Qualitative analysis conducted in Isiolo (Oldonyiro, Kina and Isiolo Town) and Marsabit (Mereille) through Key Informant Interviews and Focus Group Discussions.

Notes; Barazas are community gatherings in Kenya to decide or plan on matters in relation to different socio-economic and political issues

FACTORS HINDERING THE USAGE AND ACCESS OF DIS/DFS AMONG AGRO-PASTORALISTS AND PASTORALISTS



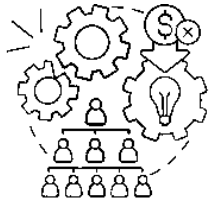
AGRIFIN

Dalberg Research

Pastoralists in Kenya face various factors that hinder the adoption and utilization of DIS/DFS; these include infrastructural and capacity



Lack of digital literacy and technical skills: Many pastoralists and agro-pastoralists lack basic digital literacy and technical skills, which hinder their ability to use and fully utilize digital financial services.



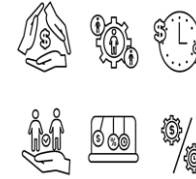
Limited access to digital infrastructure: Many rural and remote areas, where many pastoralists and agro-pastoralists live, lack reliable and affordable access to digital infrastructure, such as internet connectivity, power, and mobile devices.



Lack of trust and understanding of digital financial services: Many pastoralists and agro-pastoralists are not familiar with digital financial services and may have limited understanding of their benefits and risks. This lack of trust and understanding can limit their willingness to use these services.



Socio-cultural and gender barriers: Socio-cultural and gender norms in pastoralist communities may discourage women and other marginalized groups from accessing and using digital financial services.



Lack of relevant and tailored products and services: Many digital financial services are not designed to meet the specific needs of pastoralists and agro-pastoralists, making it difficult for them to fully utilize these services.



High costs of digital financial services: The costs associated with digital financial services, including transaction fees and the cost of digital devices, can be a barrier for pastoralists and agro-pastoralists with limited financial resources.



Insufficient awareness and outreach: There is often a lack of awareness and outreach efforts by providers and reguRobotors to educate pastoralists and agro-pastoralists about digital financial services, their benefits, and how to use them effectively.

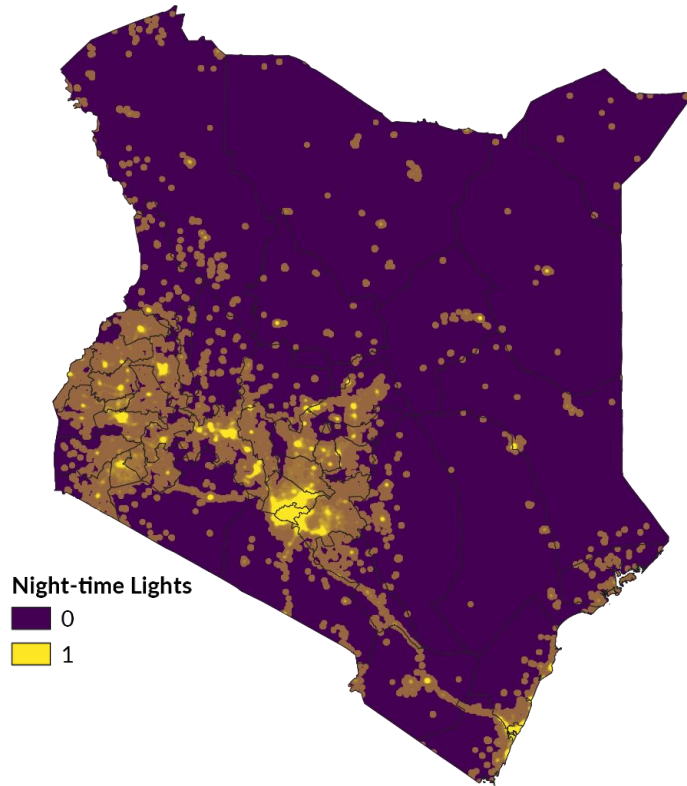


Lack of local language content and relevant information: Many pastoralists speak indigenous languages, but information is often only available in English or Swahili, making it difficult for them to access relevant information and services.

Parts of northern Kenya lack electricity access with most counties falling below the national average

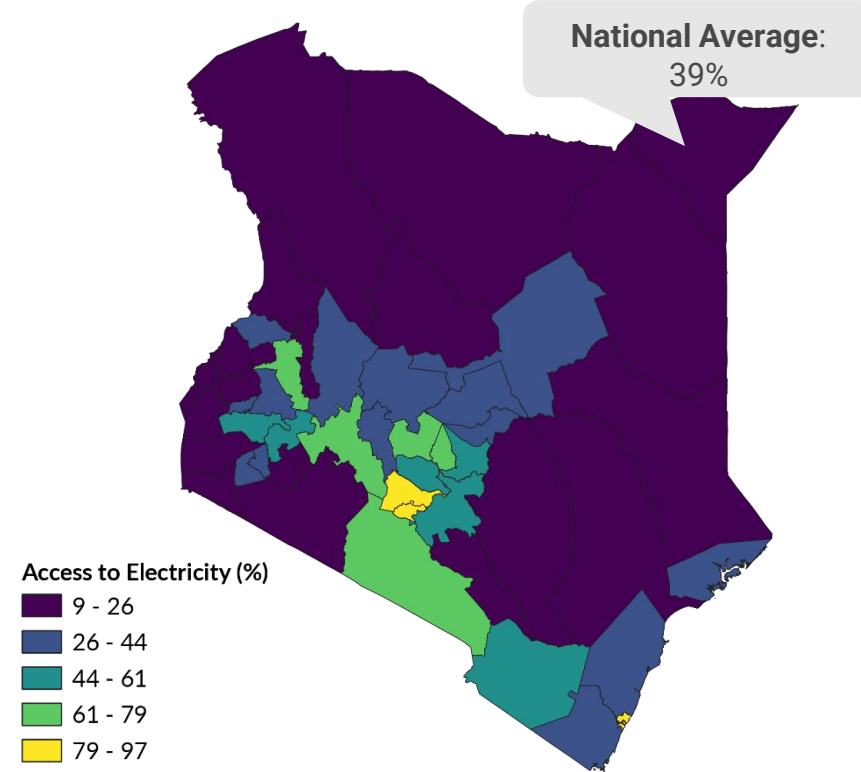
Access to Electricity (Night-time Lights)

Proportion of population with access to electricity



Access to Electricity

Proportion of households with access to electricity



Night-time lights intensity are used as an indicator of the level of economic activity as well as access to electricity. Yellow areas represent locations that record night-time lights, indicating the presence of some economic activity as well as great access to electricity. Blue regions however do not record any night-time lights, indicative of the absence of these factors

Presence of formal financiers in pastoral areas does not translate to their utilization; uptake of informal financial services is higher

Types of financial products offered to pastoralists

Supply side

Banks, MFIs, informal banking, and mobile banking are all found in the pastoralists' areas in Kenya

There were no stock market, treasury or debt instruments, wealth management, credit and debit cards financial products, and ATMs financial products in the pastoralist regions in Kenya

Insurance firms were present within the pastoralist areas, but few of the pastoralists were aware about the insurance services.

Presence tailored finance products like Sharia compliant products is wanting in pastoral regions

Gaps in types of financial products

Demand side

Banking and mobile banking financial products such as M-PESA were utilized by the traders and to a small extent by the herders. The favoured type of financial product was informal banking which is done through merry-go-round, table banking and/or village saving groups such as VSLAs and chamas.

Developments in mobile-phone services, which is now used for cash transfers, has enabled pastoralists to receive money from relatives or contacts in the cities.

There are financial product gaps in form of insurance, stock market, treasury and wealth management

Other institutions providing finances to pastoralists include: Non-Governmental Organizations: Some NGOs, like ADESO, offer financial assistance to pastoralists, and Food for the Hungry has partnered with Equity Bank to offer loans to livestock farmers at a lower interest. However, these cover small pockets of the pastoralist population



Challenges that hinder pastoralists from getting financial support range from poor infrastructure to socio-cultural practices and believes

Challenges that hinder pastoralists from getting financial support in Kenya

Supply side

Poor infrastructure, insecurity and network problems; This makes it difficult for financial institutions to access pastoralists with the needed services

Loan defaulting by pastoralists; impacts of drought lead to mass deaths of livestock rendering pastoralists to be unable repay their loans.

Knowledge gap- Cultural practices and low literacy levels among pastoral community making finance products penetration hard. Most of the products are also not Sharia compliant whereas there is need to tailor to such services. This hampers sufficient service delivery to pastoral communities

Financial institutions do not get government incentives that can enable them to provide pastoralists with better terms

Unreliable information makes it difficult for financial institutions to determine the pastoralists that can get credit

Demand side

Collateral: Pastoralist communities have limited securities. Communal ownership of land by the pastoralists makes it difficult for them secure loans from financial institutions due to lack of collateral. Cattle are not registered as movable property (Chattels) that can be used to secure credit.

Lack of trust by pastoralists to financial institutions as they fear being exploited

Financial illiteracy among most pastoralists prevents them from keeping simple financial records that can help them make better financial decisions

Pastoralists lack appropriate knowledge to enable them increase their produce as well as lack market information on when to sell; this leads to low profit margins that cannot comfortably repay their loans

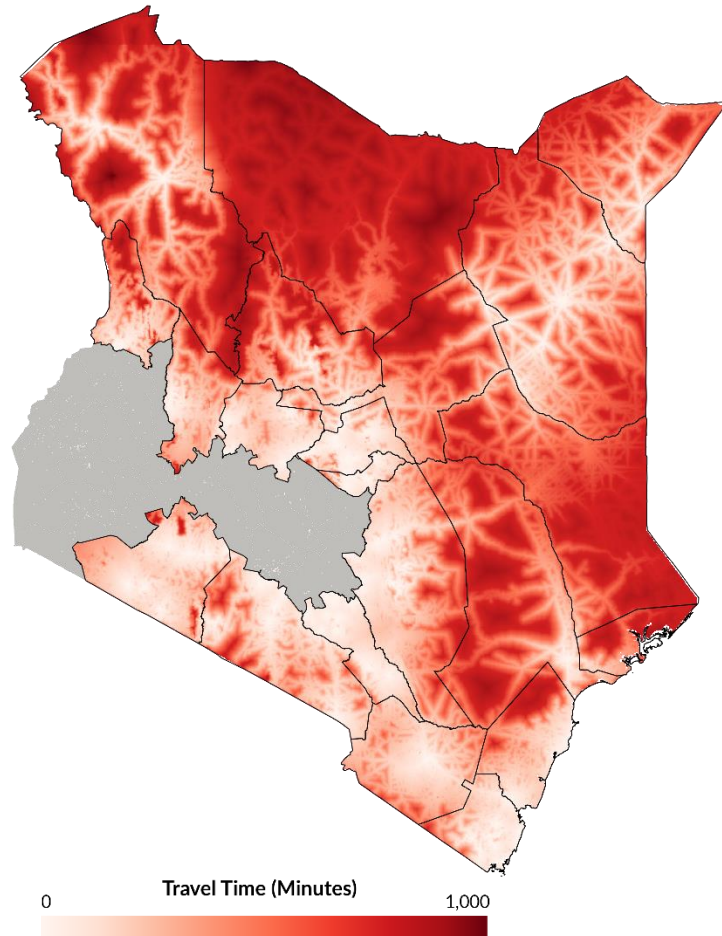
Cultural practices: Most pastoralists have a cultural attachment to their livestock; they do not want to dispose them in order to repay loans given to them; Most pastoralists keep livestock for prestige as opposed to commercializing.

Pastoralists prefer informal financial service providers

Poor infrastructure across the ASAL region leading to longer travel time to financial institutions hinders pastoralists from enjoying financial benefits

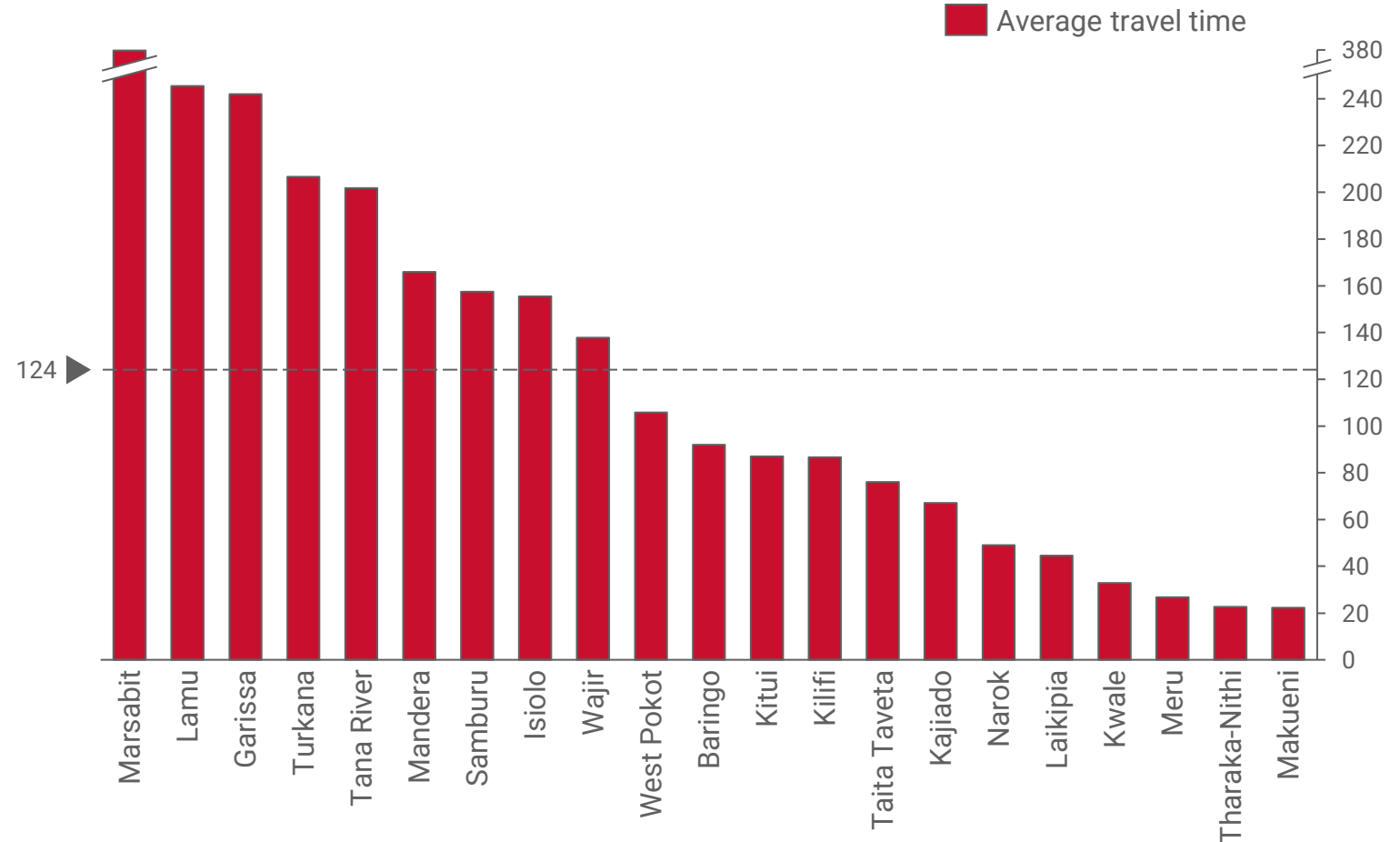
Travel time to financial institutions

Time in minutes



Average travel time to financial institutions in counties rearing livestock

Average travel time in minutes



OPPORTUNITIES OF INCREASING AGRO-PASTORALISTS AND PASTORALISTS INCOME THROUGH DIGITAL FINANCIAL AND INFORMATION SERVICES



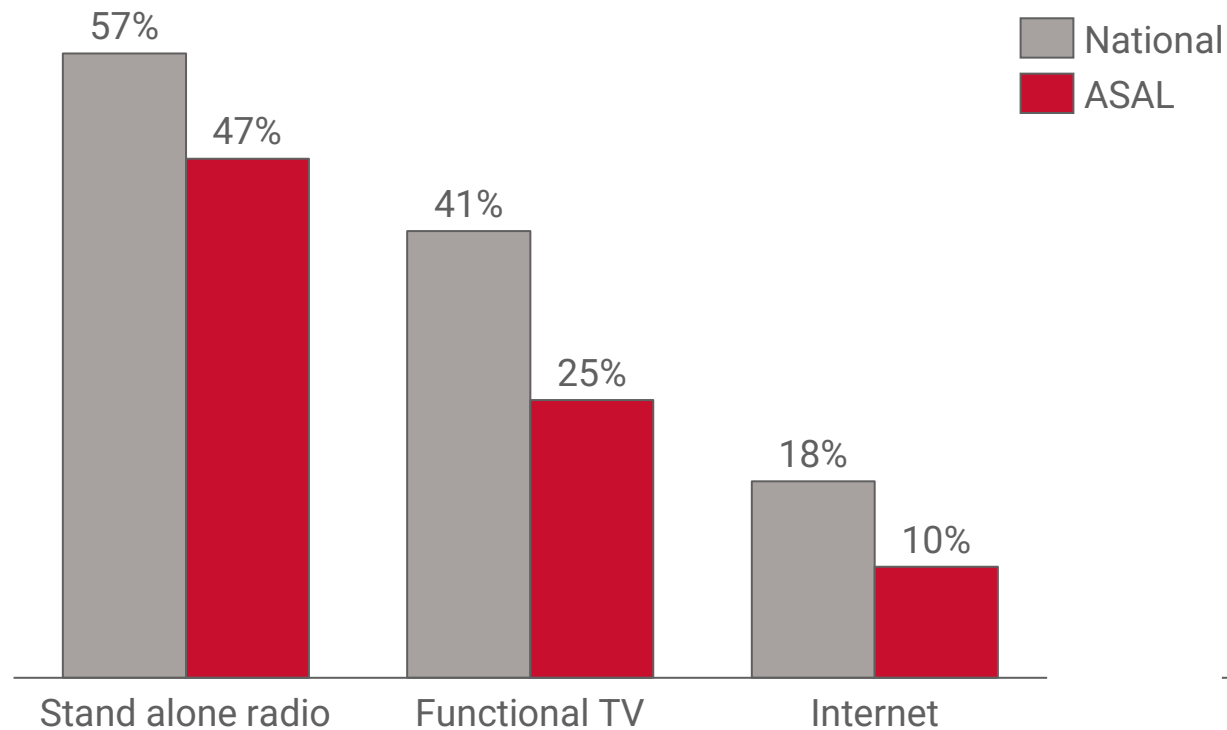
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Dalberg Research

To analyse opportunities to improve DFS and DIS dissemination, we will examine the ownership and usage of communication devices such as cell phones, televisions, and radios

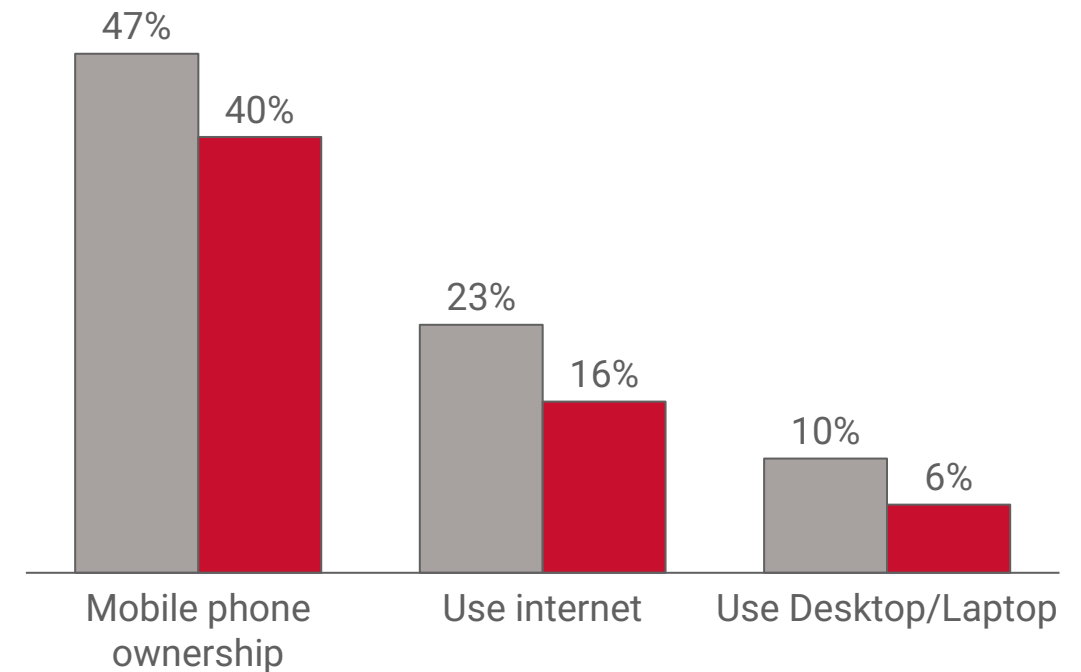
Households with ownership of assets

% of population with access to ICT equipment



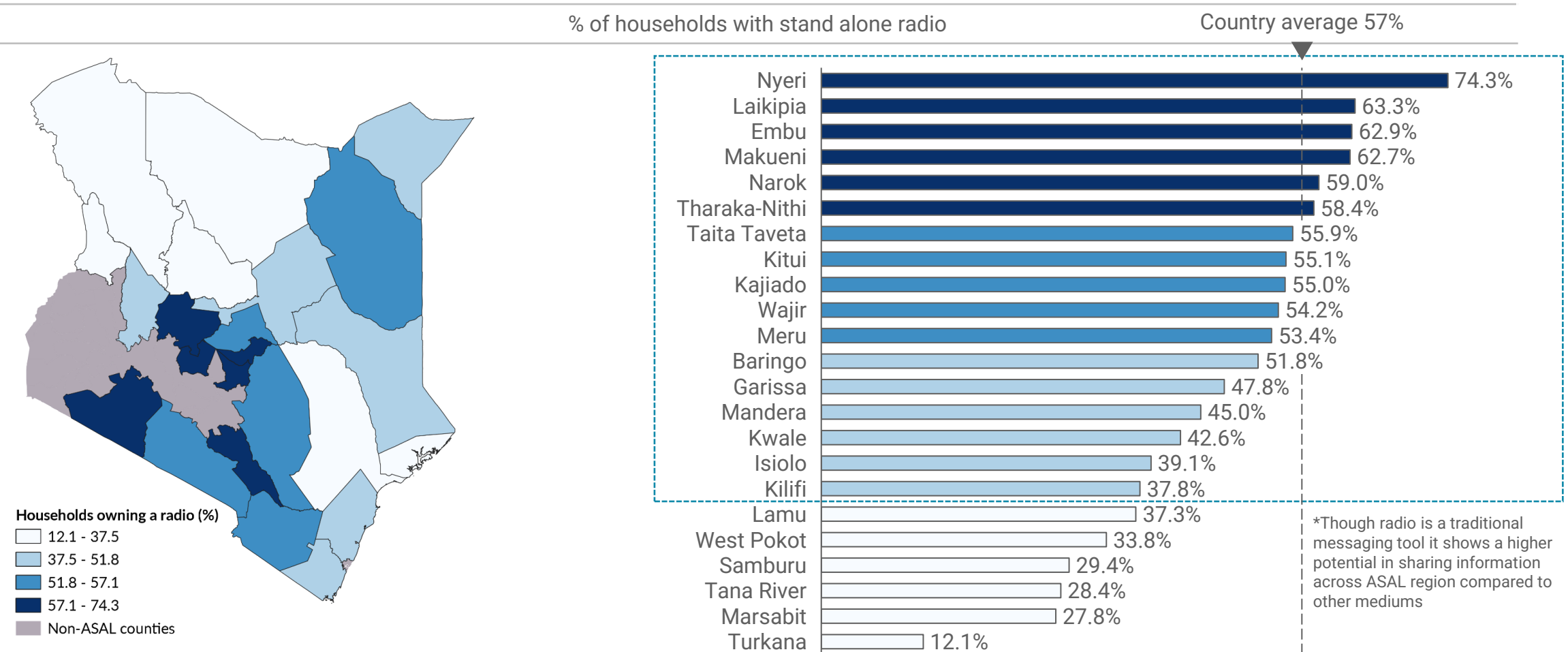
Distribution of population with different assets

% of population with access ICT assets



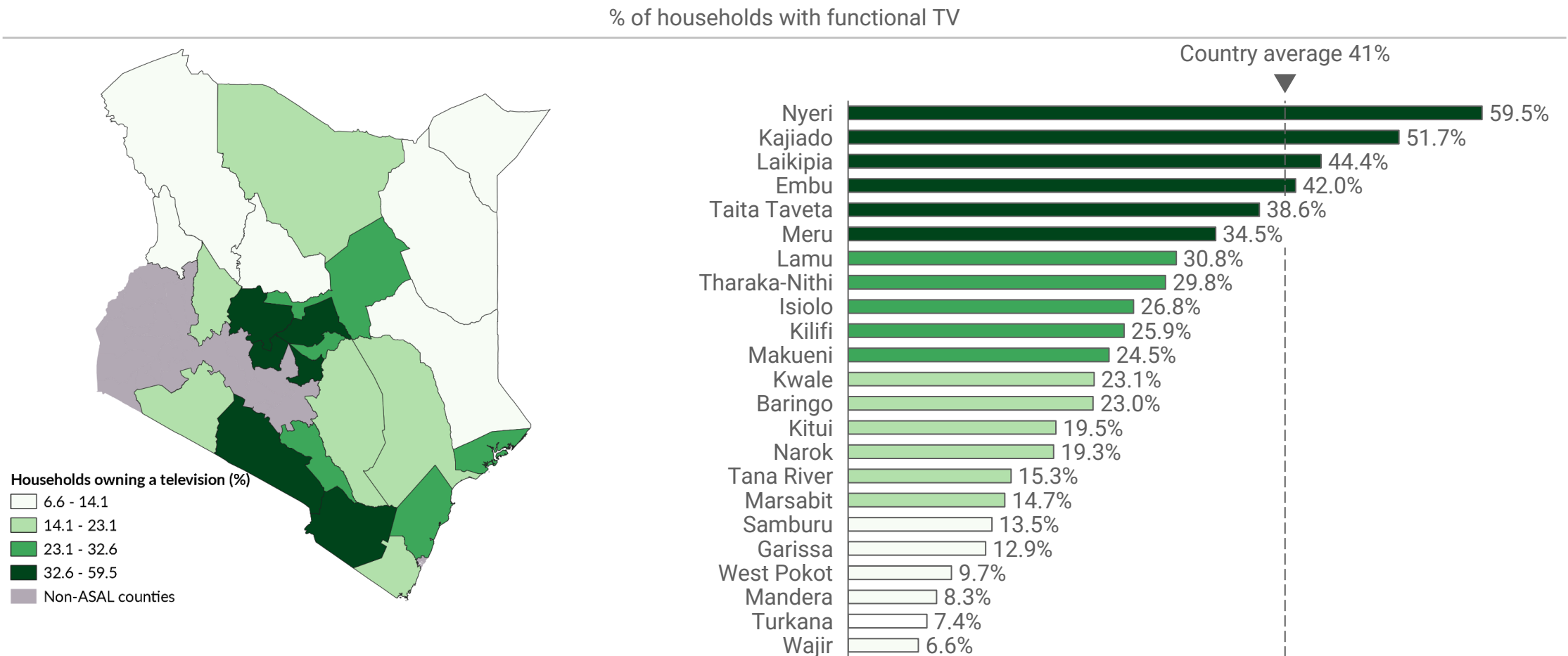
In over half of the ASAL counties, standalone radio ownership is relatively close to the national average

Percentage Distribution of Conventional Households by Ownership of Selected Household Assets



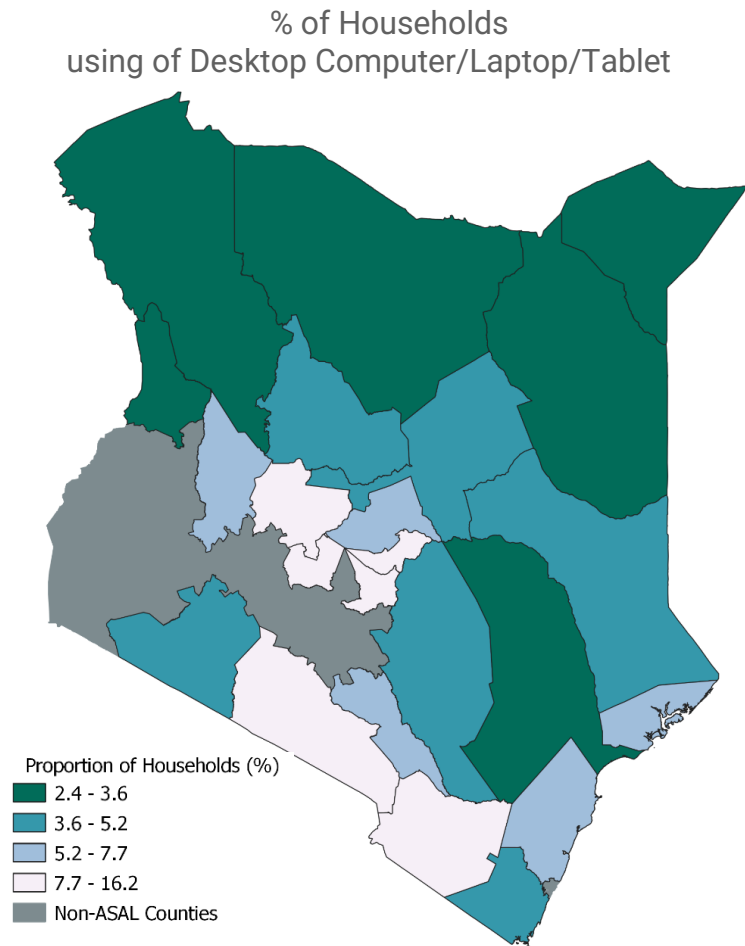
Ownership of a functional TV is lower than the national average in majority of ASAL counties

Percentage Distribution of Conventional Households by Ownership of Selected Household Assets

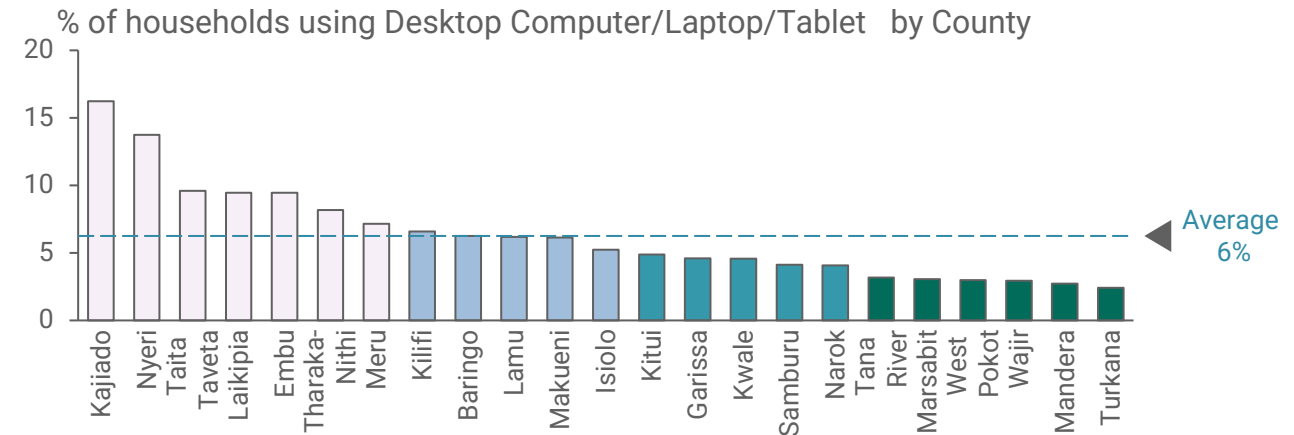


In counties where agro-pastoralism is predominant in the ASAL region, desktop computers, laptops, and tablets are relatively common

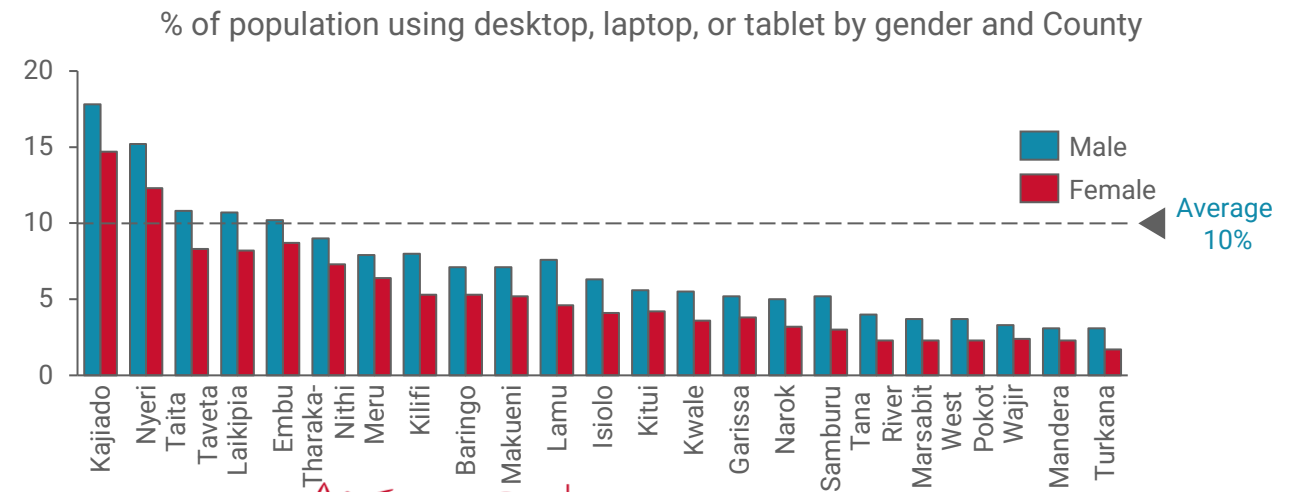
Households by use of Desktop Computer/Laptop/Tablet



Distribution of households using Desktop Computer/Laptop/Tablet



Percentage distribution of population using desktop computer, laptop or Tablet



SPARC



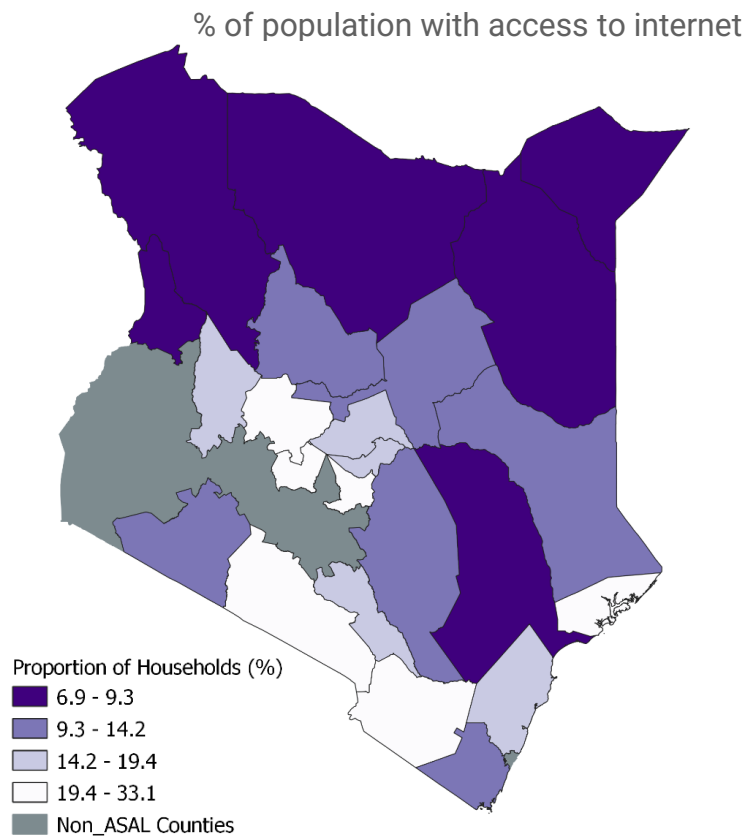
MERCY
CORPS

AGRIFIN

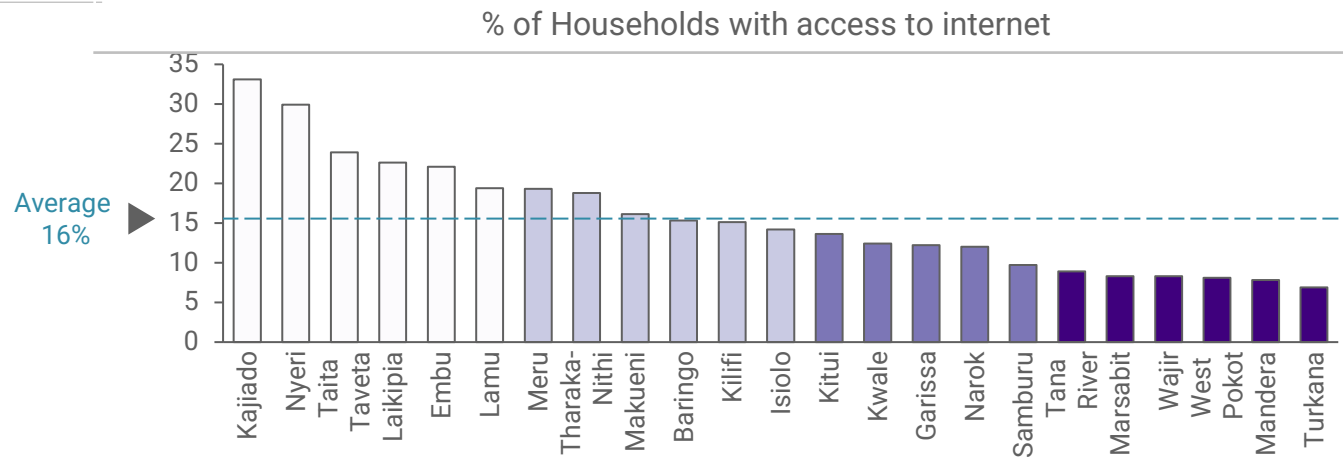
Dalberg Research

Approximately half or more of the people in the ASAL region lack proper access to internet, with agro-pastoralist counties having a relatively better level of access.

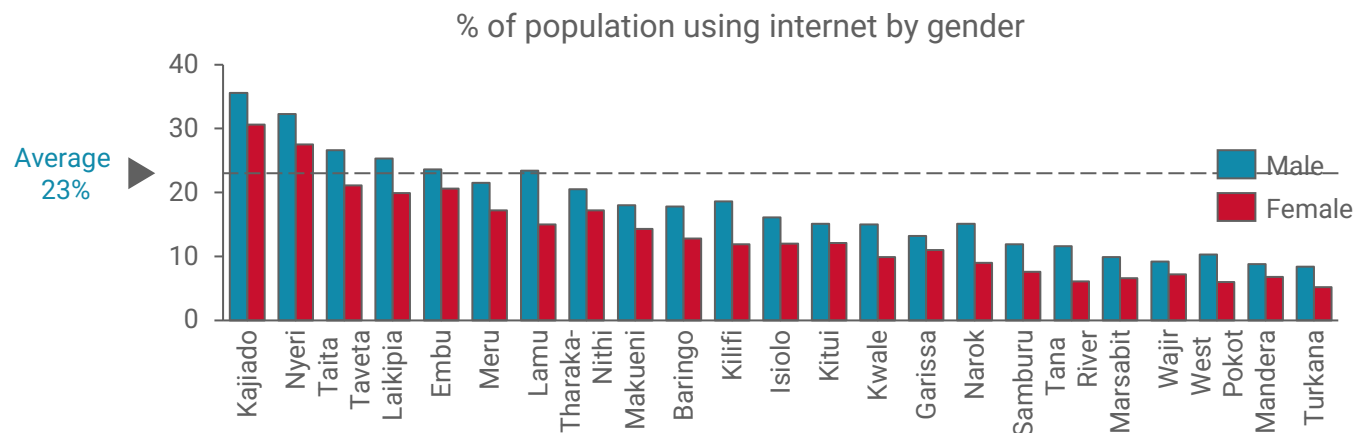
Percentage Distribution of Households by use of internet



Percentage Distribution of Households by use of internet across Counties

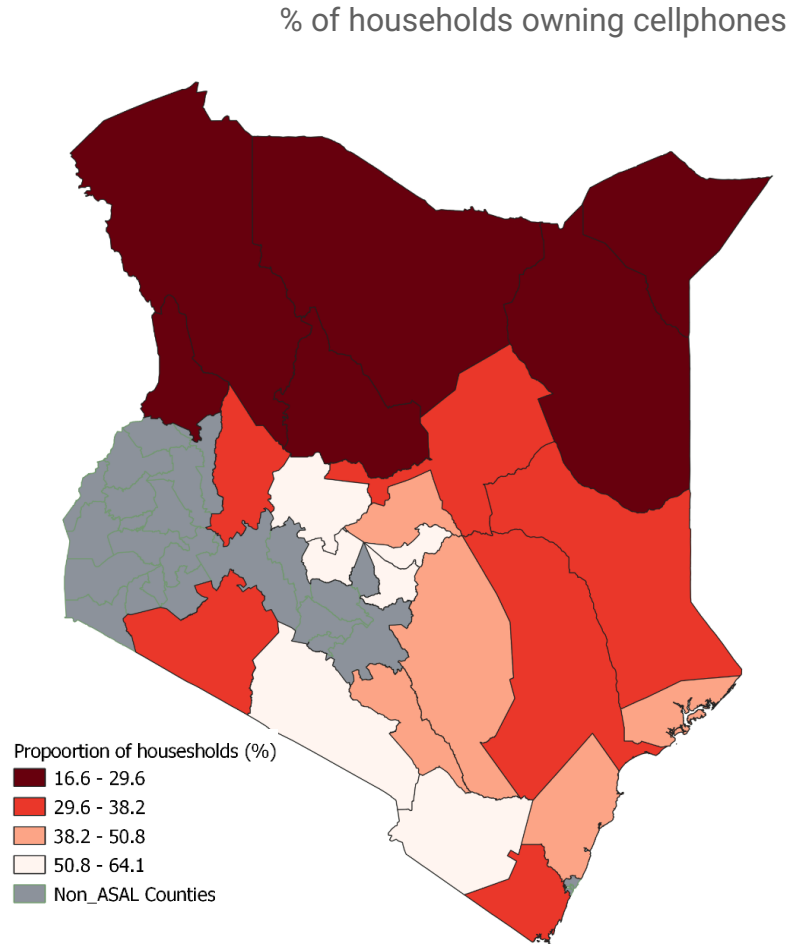


Percentage distribution of population using Internet

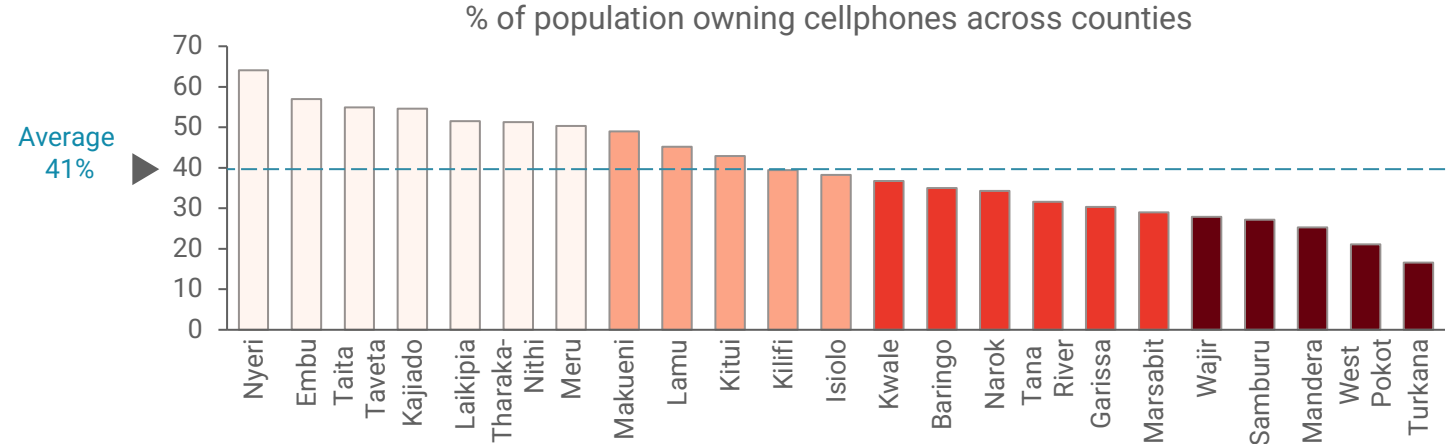


Cellphone ownership is more than the national average in more than half the of ASAL counties.

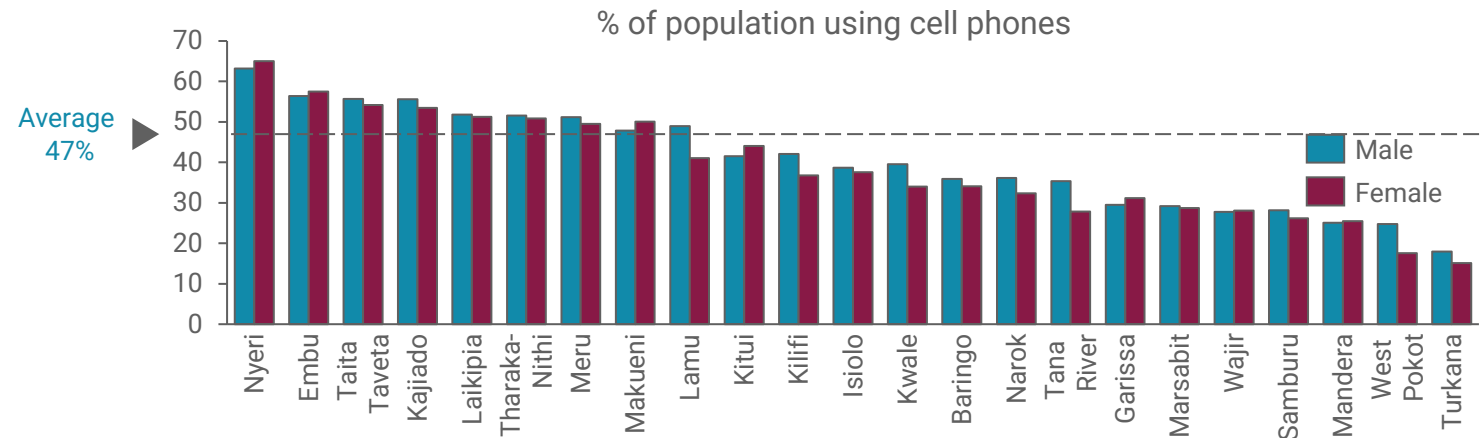
% Distribution of Households by ownership of cell phone



% of Households by ownership of a cell phone by County



Percentage distribution of population owning a cell phone

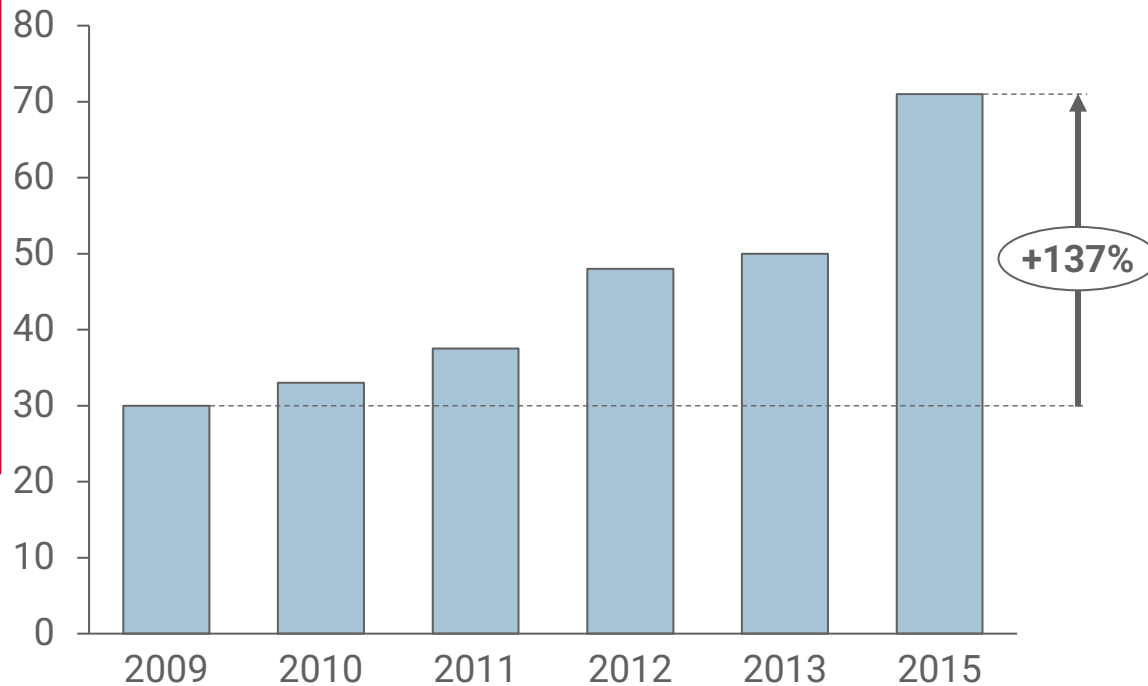


There has been rapid growth in ownership and daily use of cellphones; ownership grew more than 2X between 2009 and 2015 in Marsabit

- Ownership of Cellphone, however, doesn't imply usage considering only 65% of the households use their phones on a daily basis with 18% not able to use them as at 2015. Besides, some pastoralists use phones without necessarily having to own them
- The ownership of cellphones and failure to use them could be attributed to poor network coverage, improper electricity infrastructure and insufficient cellphone credit

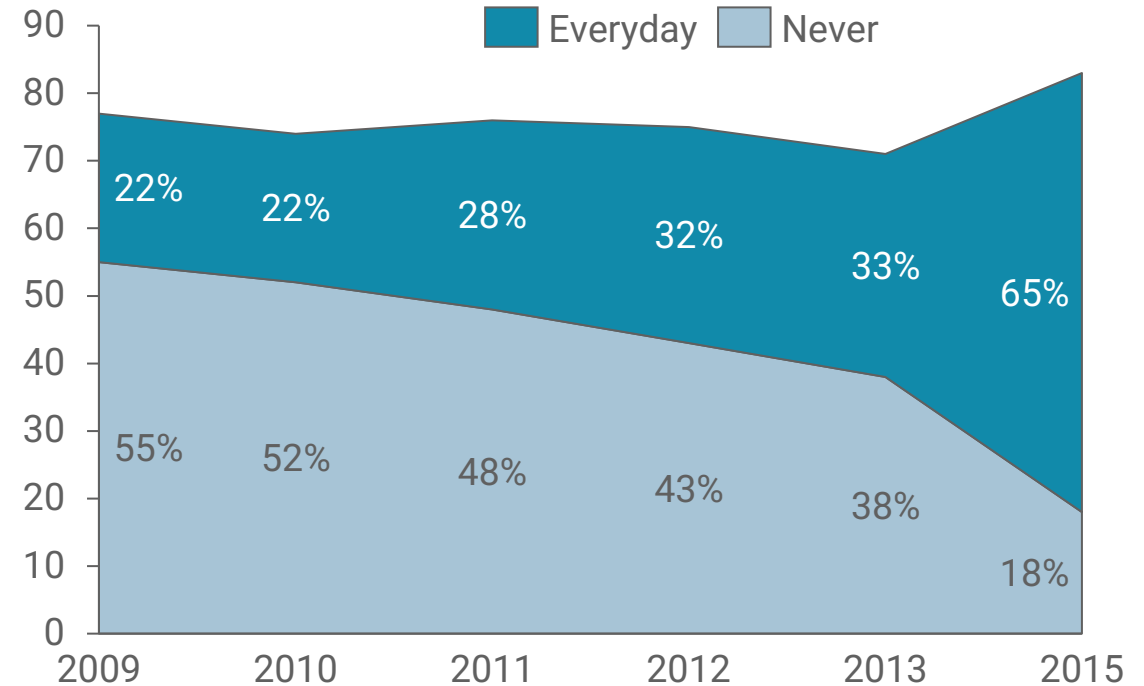
Ownership of at least one cellphone in Marsabit

% of households owning at least one cellphone and smartphones



Cellphone utilization in Marsabit

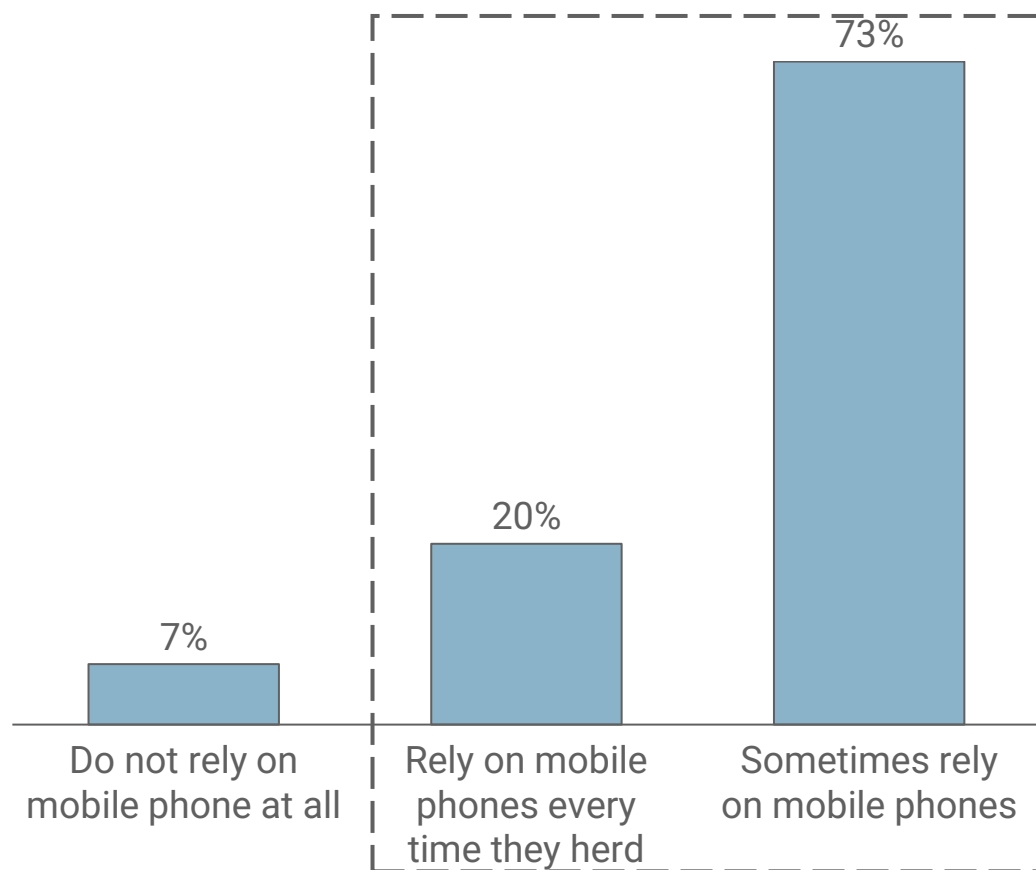
% development of cellphone utilization in Marsabit



Unlike pastoralists from other regions, herders from southern Kenya region rely on cellphones (~93%) during herding

Herders' reliance on Cellphone

% herders' reliance on Cellphone



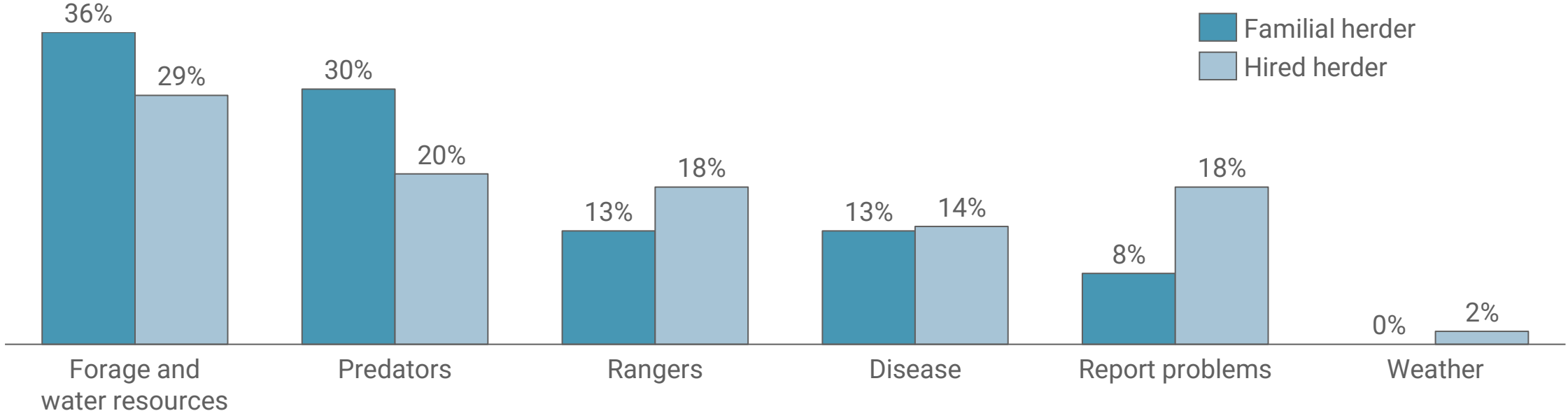
- ❖ ~ 97% of the herders from southern Kenya have access cellphones with 80% having their own cellphones whereas 16.7% indicating they have to borrow a cellphone from a friend or relative whenever they need to use
- ❖ For the herders who rely on cellphones, ~20% initiate a “flash” call indicating the need to return their calls immediately. This is often done when there is insufficient cellphone credit but there is need for communication
- ❖ The credit top-ups are in small ranges of 5, 20 or 50 shillings or electronically sent credit (*sambaza*) with an average minimum and maximum spend of Ksh. 28 and Ksh. 71 per week respectively. Sometimes the pastoralists provide the herders with credit
- ❖ Communication majorly is through phone calls with a near zero reliance on text messaging regardless of their low cost. This is a likely pointer to low literacy levels among the pastoralists
- ❖ Safaricom and Airtel are the main network providers. Herders cite network reliability as generally good except during storm and when they graze in areas with poor coverage. They attribute this to improvement on network infrastructure as a facilitator of communication in the region

The herders use cellphones to seek information on forage and water sources which is mostly shared between peers

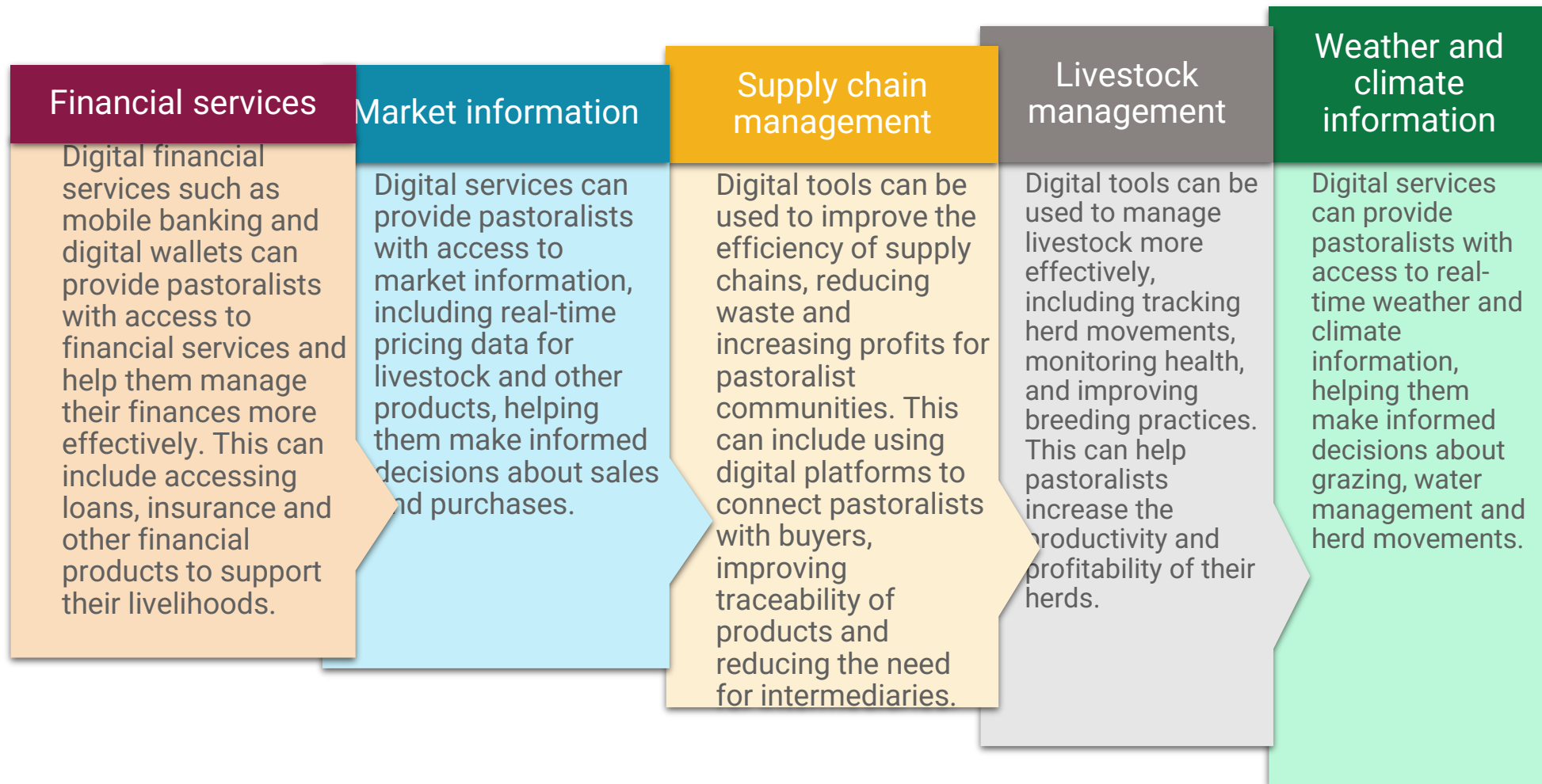
- The herders majorly receive or make calls to enquire about the location of forage and water resources from peers. Moreover, they seek information on the location of predators and rangers likely to disrupt their herding practices. This information is sometimes reliable or unreliable
- Herders also report problems associated with livestock management such as lost livestock, cow giving birth and sick or injured livestock to the owners of the livestock
- Sharing information between the herders is mediated by space and time; this can happen before, during or after the herding regardless of whether the herder is a hired or family one

Utilization of cellphones across herders

% type of information sought by phone calls



As much as ICT uptake among pastoralists is low, there are several ways that digital services can improve the lives of pastoralists in Kenya



CONSTRAINTS TO AGRO-PASTORALISTS AND PASTORALISTS INCREASED PRODUCTIVITY



AGRIFIN

Dalberg Research

Environmental as well as policy factors hinder greater productivity among pastoralists



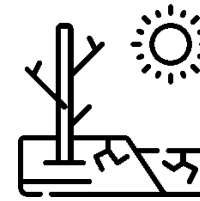
Inadequate extension service delivery in ASALs

The rough terrain in the rangelands and inadequate extension staff hinders sufficient delivery of extension services to pastoralists. This is a setback since pastoralists cannot utilize technology recommendations particularly on inputs and land use.



Inadequate research in rangeland

KALRO and research organizations should research livestock resources, apiculture, plant products, and medicinal products to increase productivity and competitiveness in the rangelands. Slow growth calls for addressing rangeland needs and development of appropriate technology.



Uncoordinated drought and floods response

Absence of coordinated response between public and private sectors in the rangelands after drought renders the pastoralists vulnerable since impacts such as food insecurity negatively affects their livelihoods.



Inappropriate legal and regulatory framework

The rangeland resource management lacks a comprehensive land policy that should cover use, tenure and security. This has resulted to overexploitation of resources leading to environment degradation.



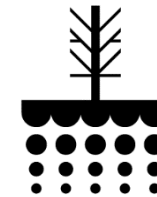
Insecurity

Livelihoods of the pastoralists have been affected due to cattle rustling since it leads to people being displaced, consequently, resources are not fully utilized which is not sustainable



Pollution of water and air

Pollution from urban centres and towns, air pollution from transport sector and water pollution from explorations have far much negative impacts to the productivity of rangelands in Kenya.



Land Degradation

Over grazing, under grazing, and deforestation has led to land degradation. This in turn leads to the loss of grazing lands which hinders productivity.



Loss of important biodiversity

Poor management of the rangelands has led to land degradation, unsustainable harvesting of resources and climate change and thus loss of important biodiversity such as trees and grass species



AGRIFIN

Dalberg Research

Inadequate financing in the livestock sector limits targeted vaccination; pastoralists self-diagnose leading to frequent disease outbreaks

Inadequate public and private financing, the sector is not attractive to investors. This is attributed to low precipitation associated with climate change and variation in availability of fodder; this is a challenge to sustainable livestock production.

Weak policies and **unsupportive legislation** to support an enabling environment for pastoralism and livestock production to thrive.

The **high number of players** in the livestock value chain from production to markets lead to minimal returns on investment hence depress the earnings from pastoralists. In most cases the livestock value chain players do not employ coordinated approach in resolving pastoral challenges leading to duplication of efforts or no target on some challenges

Frequent livestock disease outbreaks and **limited access to health services delivery (underdeveloped extension services)** are major constraints to the development of livestock production.

Animal health service delivery is hampered because of **widespread self-diagnosis and medication**. This is in addition to a lot of counterfeit drugs in the market. This leads to frequent outbreaks of livestock diseases.

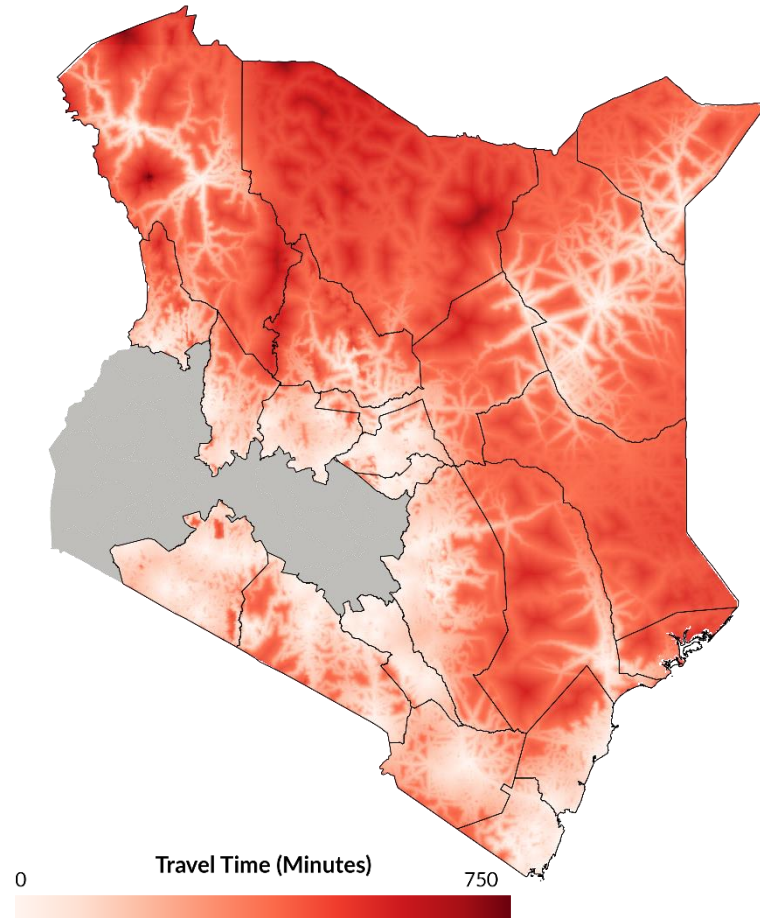
The **high cost of targeted vaccination** due to the vastness in the northern region and low funding makes it difficult for delivery of efficient animal health services.



Longer travel times to markets in northern and eastern parts of the country can limit productivity among pastoralists and agro-pastoralists

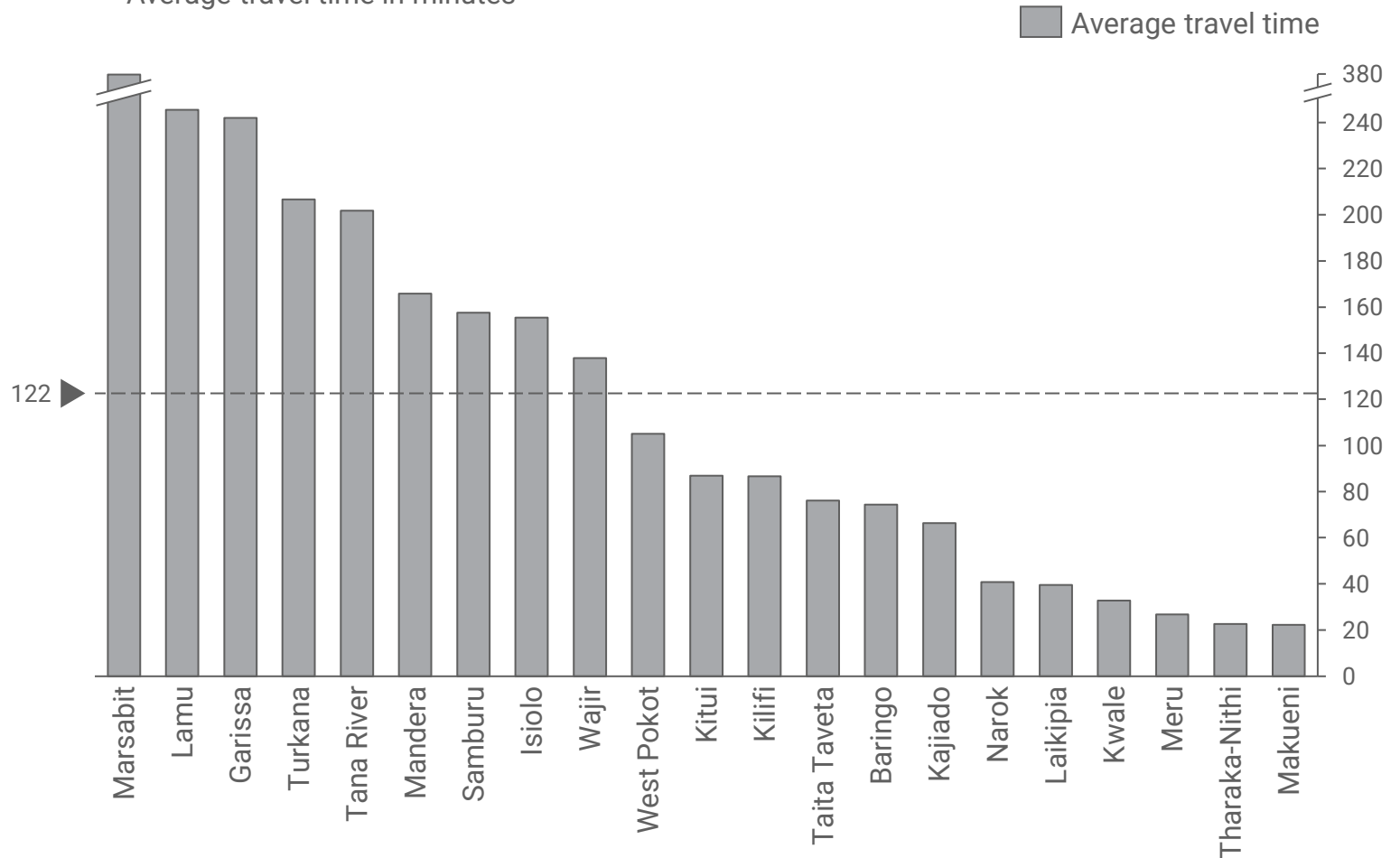
Travel time to markets

Time in minutes



Average travel time to markets in counties dominantly rearing livestock

Average travel time in minutes



SHOCKS FACING AGRO-PASTORALISTS AND PASTORALISTS AND THEIR COPING MECHANISMS



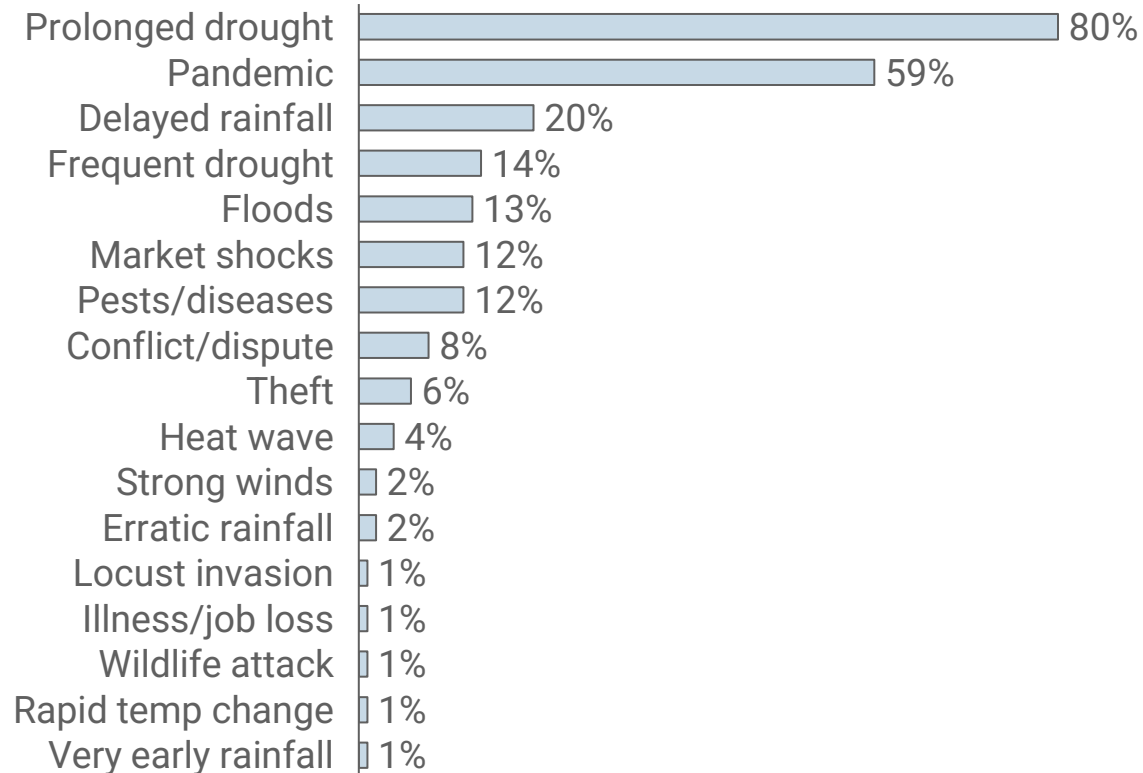
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Dalberg Research

Drought has increasingly been a threat to pastoralists livelihoods over the years

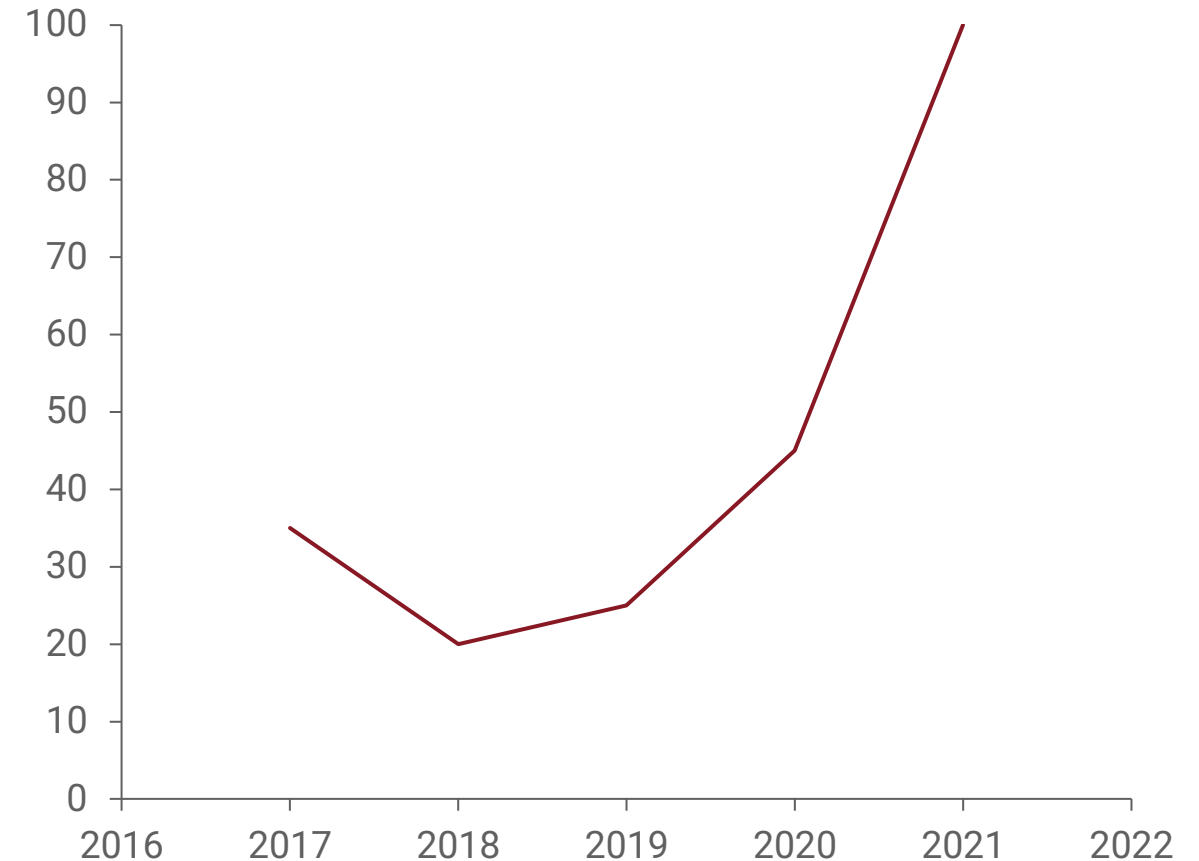
Types of shocks experienced by pastoralists

% of household by type of shock



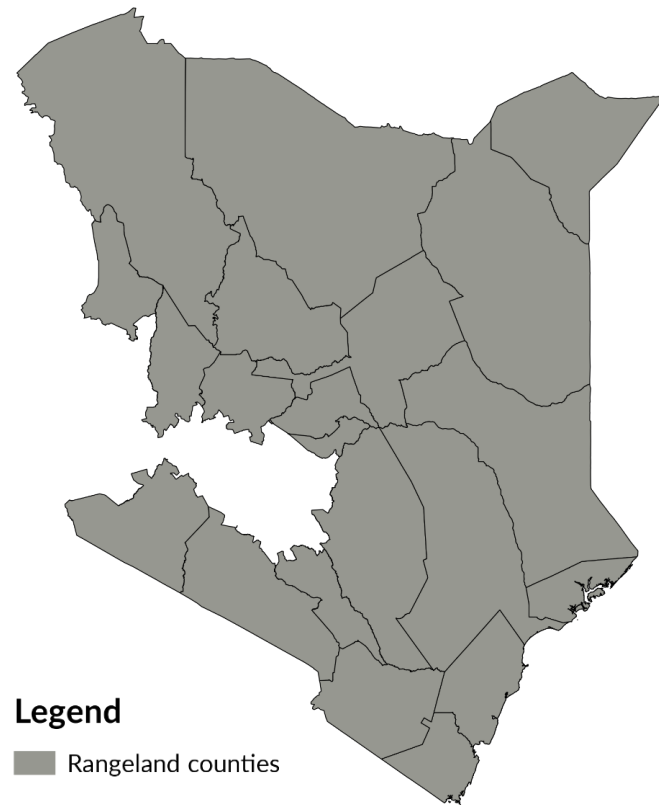
Trends in occurrence of drought in Kenya

% of households that experienced drought

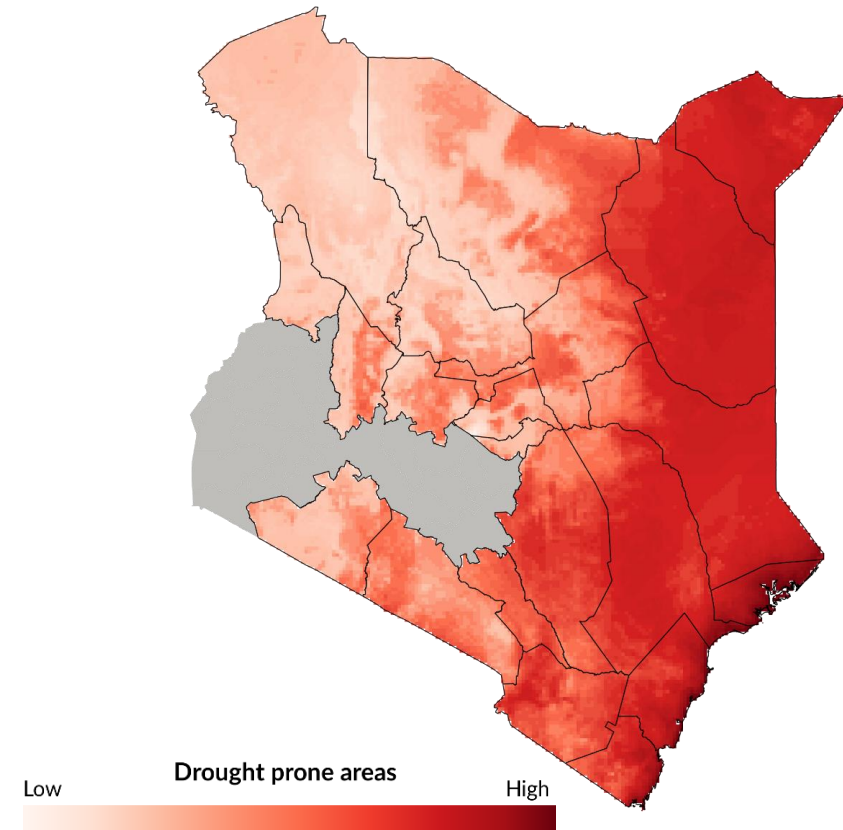


Extreme drought events in northeastern, eastern and pockets of coastal regions increase vulnerability to climate shocks

Counties dominantly in rangeland region



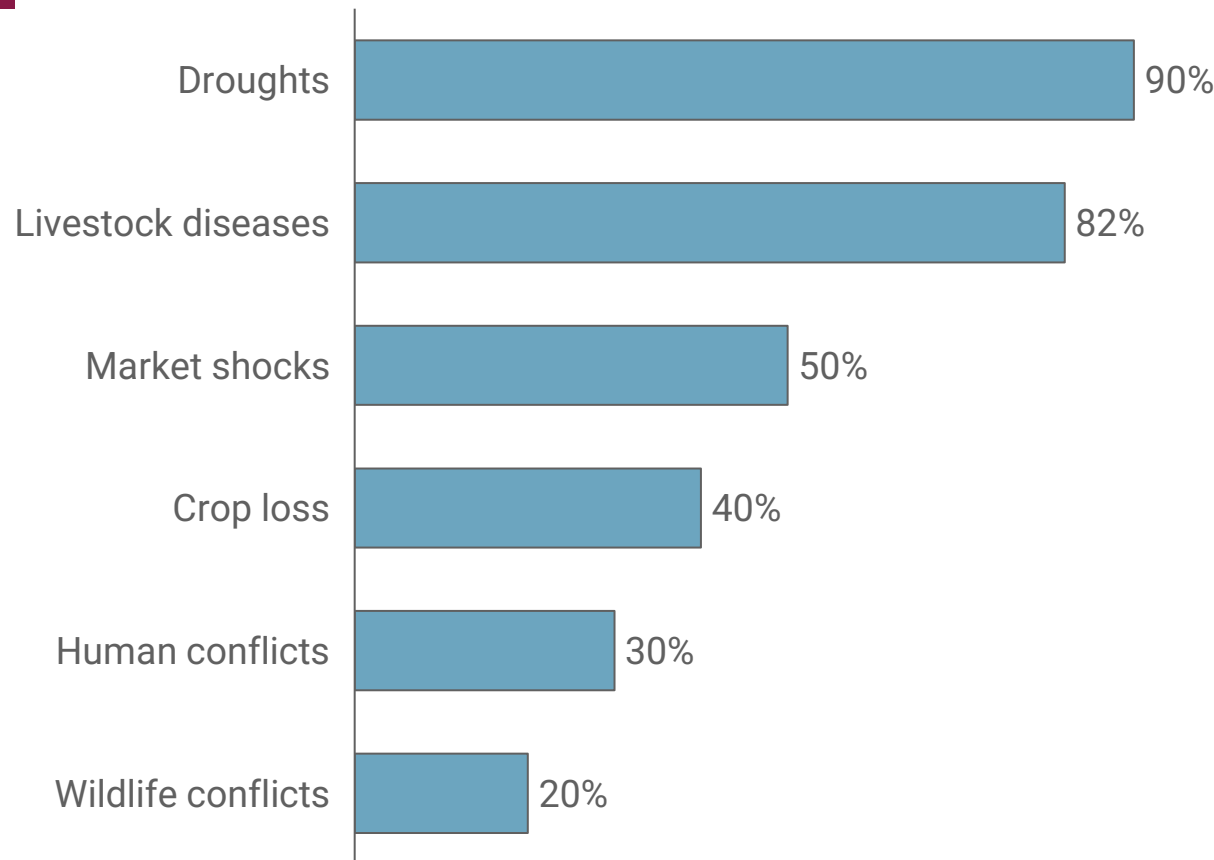
Drought prone regions



In addition to drought, pastoralists also face livestock diseases as major threat to their livelihood

Pastoralists' vulnerability to shocks in West Pokot

% of pastoralists vulnerable to shocks



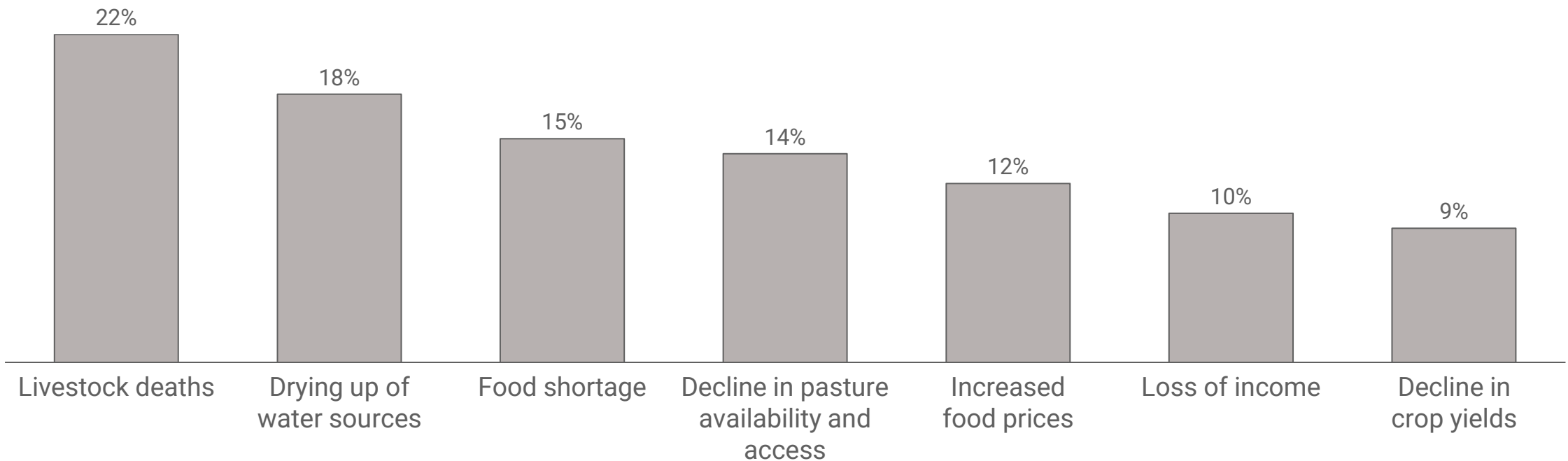
- ❖ Pastoralists are adversely affected by climate-change related shocks; mostly droughts and livestock diseases. These shocks lead to deterioration of livestock quality and even mass death of herds
- ❖ Some of these shocks occur concurrently. For instance, it was cited that over 80% of households experience livestock diseases during the dry seasons. This happens when they have to move their animals to shared pasture grounds and water in West Pokot
- ❖ Furthermore, intercommunity conflicts over water and pastures heighten during the dry seasons. The conflicts result in cattle rustling and loss of human lives
- ❖ The households are affected by market shocks due to price fluctuations of livestock which in most cases are controlled by brokers due to low pricing information
- ❖ Agro-pastoralists in West Pokot have had incidences of crop loss due to erratic rains and crop pests and diseases coupled with livestock loss due to attacks by wildlife

Drought in turn leads to death of the livestock which is the main income generating source to pastoralists

- In the ASALs, frequent droughts are associated with deterioration of livestock condition, increased incidences of some diseases and livestock deaths, altered herd structure and a collapse of livestock markets
- Pastoralists are left vulnerable since they derive most of their food and income needs from livestock, necessitating emergency disaster response and the need to build their long-term adaptive capacity

Drought impact on pastoral livelihoods

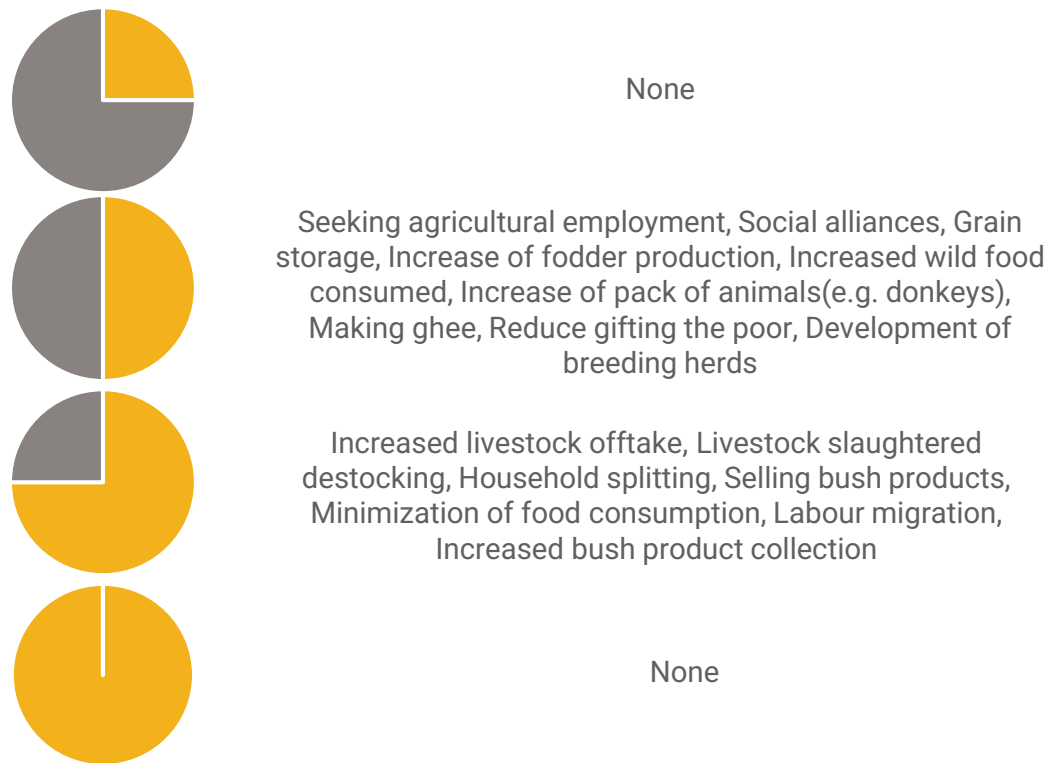
% drought impact on pastoral livelihoods



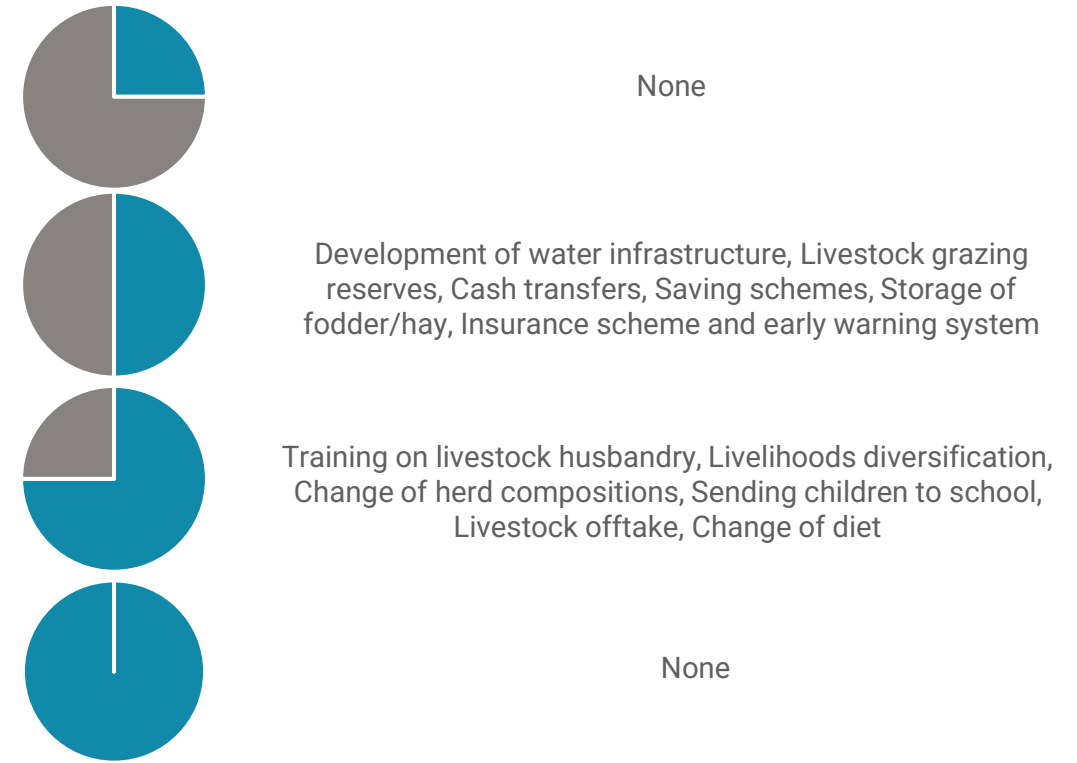
Pastoral households pursue a myriad of actions and strategies to cope and adapt with the unexpected events such as the oddities of drought

- In the short term, more than two thirds of the pastoralists increase livestock offtake to cope with the unexpected events
- While for the long term, more than two half of the pastoralists seek to increase knowledge on livestock husbandry and diversified their livelihoods as their main adaptation strategy

Coping strategies by pastoralists



Adaptation strategies by pastoralists

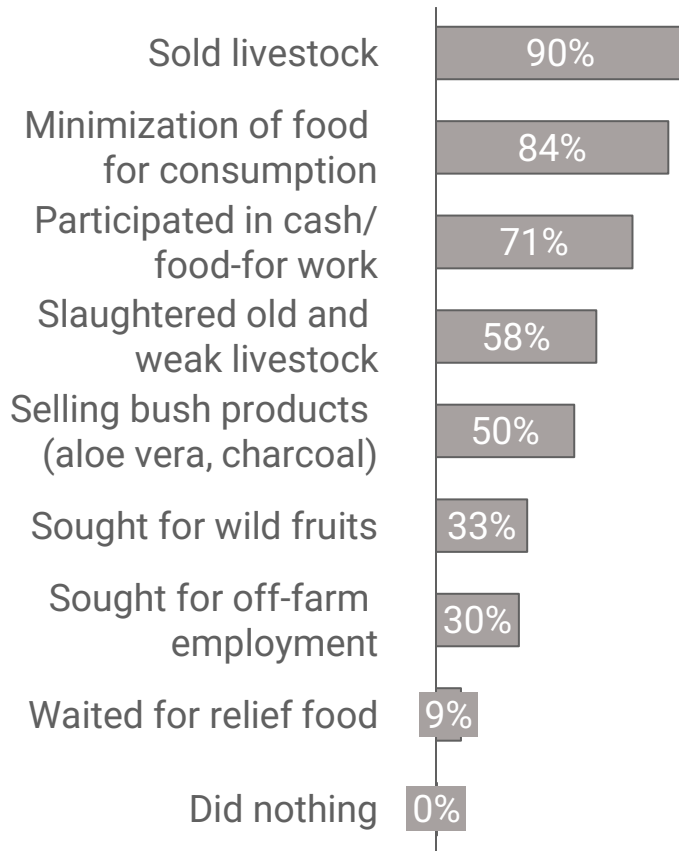


...also, pastoralists have employed various traditional coping and adaptation responses against extreme drought events

Case study
West
Pokot

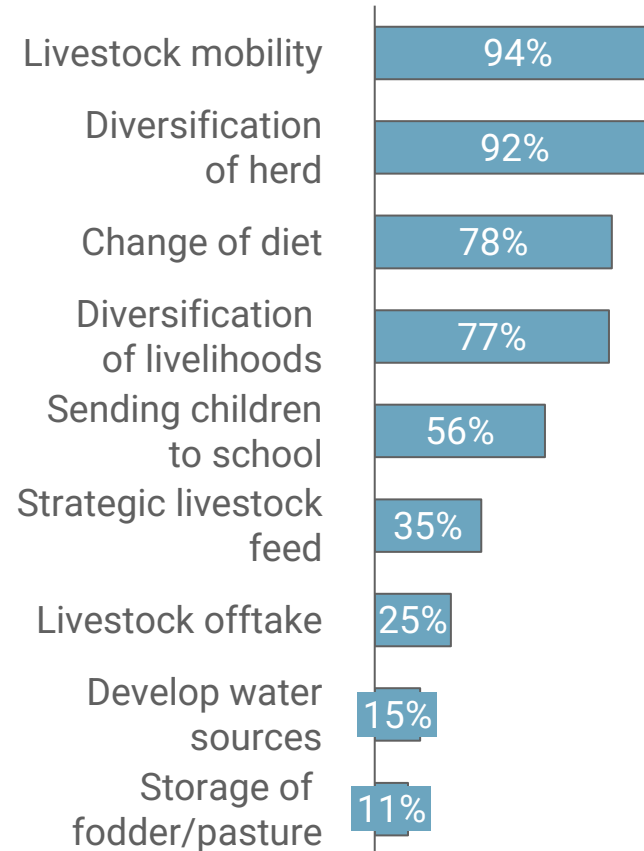
Coping mechanisms

% coping mechanisms



Adaptation strategies

% adaptation strategies

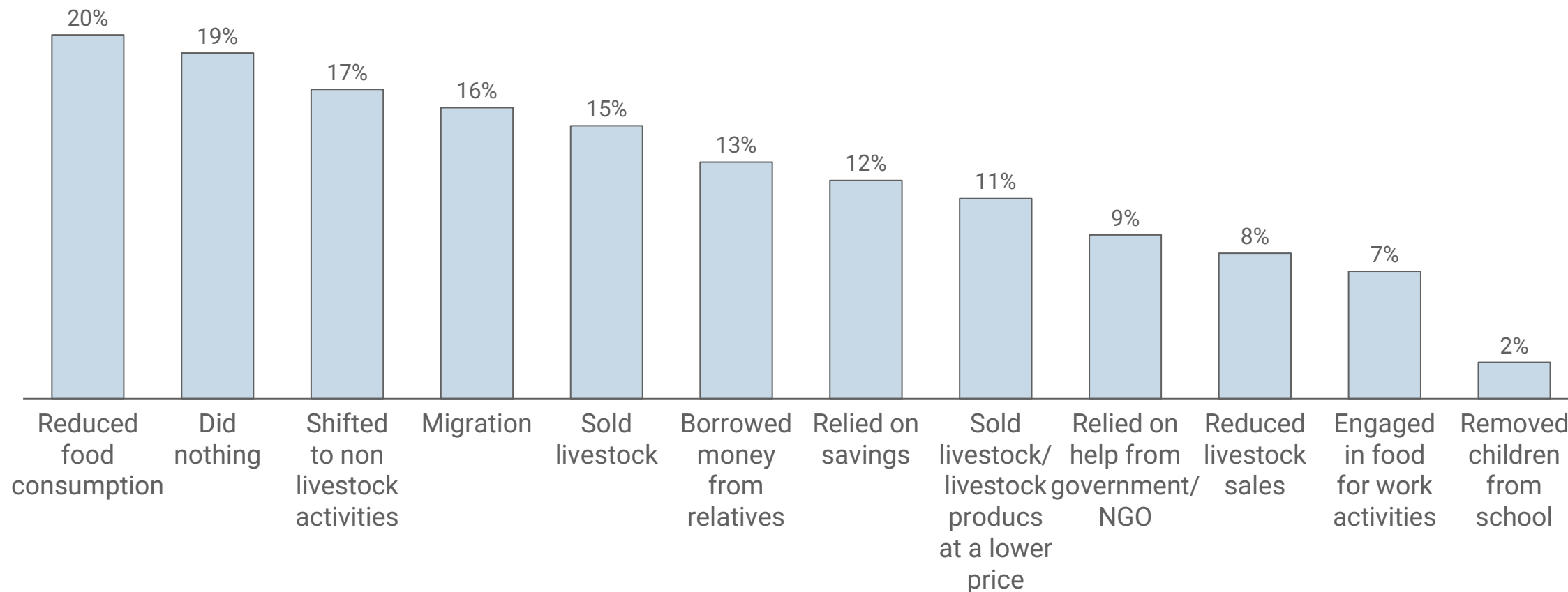


- ❖ Unlike adaptations which involve long-term shifts, coping responses are more reactive and mainly involve temporary adjustment of livelihood activities in response to drought.
- ❖ These coping responses include a combination of strategies such as migration to areas with more available water and pasture, reducing the number of livestock they own, and relying on stored resources such as food and water.
- ❖ Households diversify herd composition and keep a mix of livestock species (cattle, shoats, camel and donkeys). Shoats and camels are preferred since they are more resistant to drought compared to cattle
- ❖ They also diversify their sources of income and livelihoods through activities such as small business enterprises and off-farm work
- ❖ Majority prefer engaging in non-climate sensitive off-farm activities such as micro-business, casual labour, artisan, salaried/fixed employment and charcoal burning, wild fruit harvesting, honey production and sand harvesting
- ❖ There are currently 18,000 pastoralists' households insured through KLIP. Over 70,000 TLUs have been covered. This insurance cushions pastoralists against climate related shocks.

However, one in five households either took no action to cope with the shock or reduced food consumption

Coping strategies used by households to cope with shocks against extreme drought events

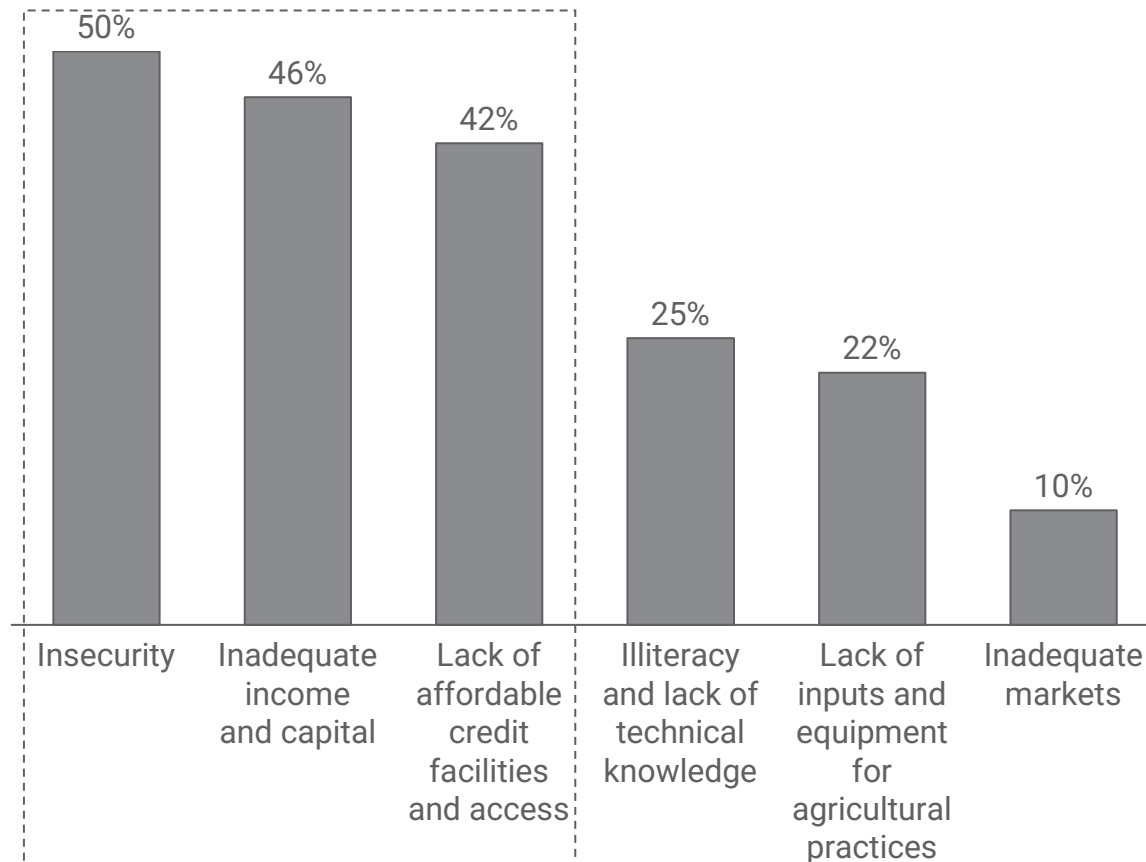
% of responses by coping strategy



Pastoralists face constraints that hinder their coping strategies; half of the pastoralists cite insecurity as the main constraint

Constraints to the adaptation and coping strategies

% constraints to the adaptation and coping strategies



- ❖ All the desired strategies such as irrigation farming, development of water sources and insurance for livestock require an initial investment capital that is beyond the reach of many pastoral households
- ❖ Whereas improved livestock breed were mentioned as effective adaptation to drought, access to livestock breeds and suitable veterinary services are problematic considering financial constraints, the poor social and economic status of most households and infrastructural challenges such as poorly developed markets in Turkana
- ❖ Credit and banking facilities are only found in towns which are only accessible to established members of business community. Mobile banking is gaining traction but this is impeded by poor network coverage in the region
- ❖ Turkana and West Pokot are marred with insecurity and conflicts associated with livestock raids. The conflicts, if not managed, are likely to undermine the gains made in supporting the adaptations
- ❖ To promote effective adaptation strategies, more emphases on peace-building initiatives are needed in conflict hotspots along the borders of Turkana

In October 2012, GoK adopted the National Policy for the Sustainable Development of Northern Kenya and Other Arid Lands

The policy is an important document for three reasons:

First, the policy acknowledges marginalization and misperceptions of pastoralism by the government. Pastoralists are among the groups most marginalised from socio-economic services and infrastructure¹

Second, the policy expresses clear shift in perception towards recognizing the strengths of pastoralism and the contribution of pastoralism to food security, environmental stewardship and economic growth¹

Third, the policy identifies critical deficiencies and measures to address them. Whilst privileging the role of traditional pastoral governance systems, the policy advocates strengthening national integration, cohesion and equity by improving infrastructure, human capital, security and the rule of law¹

Until now, considerable progress has been made on the implementation of ASAL policy which will go a long way to reduce marginalization of pastoral communities and to reduce limitations to their adaptation to extreme climate variability and change

The most meaningful immediate progress is the growth of national and county level structures to end drought emergencies in the ASALs



Also, GoK has experimented with a multitude of different drought risk financing instruments

National disaster risk financing strategy:

Kenya became the first African country to adopt a national disaster risk financing strategy in 2018. The strategy drafted and adopted by the National Treasury outlines a comprehensive mix of prearranged financing instruments providing resources to finance the response to severe droughts.

Contingency funds:

There are several contingency funds being operated in Kenya that provide finance for drought response. They are funded by a series of different donors, with a particularly prominent role for the European Union. Drought response funds are generally coordinated by the National Drought Management Authority under the Ministry of Planning and ASALs.

Contingent credit:

GoK concluded a contingent credit agreement with the World Bank under 'Catastrophe Deferred Drawdown Option' program in 2018. Upon the occurrence of a disaster, including drought, the government would be able to take out a concessional loan with a total volume of up to USD 200 million.

Contingent grant:

The National Drought Management Authority has also arranged a contingent grant arrangement with the World Bank and UK Aid under the World Bank 'Kenya Social and Economic Inclusion Project'. Under the condition of making certain financial commitments, the government receives grant payments from the World Bank and the UKFCDO in the case of a drought for delivery to vulnerable pastoralist populations using the scalable Hunger Safety Net Program, a cash transfer program active in eight ASAL counties

Agricultural insurance:

There are also publicly supported agricultural insurance schemes active in Kenya which provide resources to agricultural producers during severe droughts and thus lower GoK's fiscal drought exposure. The main schemes include: (i) the KLIP funded by GoK and provides pay-outs to vulnerable pastoralists, (ii) the IBLI funded by different donors and provides pay-outs to micro-level pastoralist policyholders during severe droughts, (iii) the WFP-funded R4 rural resilience program, comprehensive package of drought insurance, financial services and trainings to crop farmers.

Sovereign insurance:

GoK is a member of the African Risk Capacity and purchased sovereign drought insurance from 2014 to 2016. The policy purchase was not renewed as no pay-out was received in 2016 despite serious drought conditions in Kenya's ASALs. However, the government continues to be in negotiation with the African Risk Capacity on purchasing cover under another product designed specifically for the Kenyan rangelands (GoK 2020).



Source; ILRI, A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries: Volume2, 2021

Notes: KLIP-Kenya Livestock Insurance Program, IBLI-Index-Based Livestock Insurance

AGRO-PASTORALISTS AND PASTORALISTS GAP ANALYSIS



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The literature research and data analysis surfaces the following gaps

Theme	Reviewed literature	Identified Gaps
Producer profiles	<p>Ministry of East African Community (EAC), The ASALS and Regional Development https://www.asals.go.ke/</p> <p>https://www.researchgate.net/ https://www.researchgate.net/figure/Agro-climatic-characteristics-of-ASALs-in-Kenya_tbl1_316739060</p> <p>Feed the Future, The accelerated value chain development program national conference report 2018 http://oar.icrisat.org/11206/1/AVCD_NationalConference_2018.pdf</p> <p>Integrated Food Security Phase Classification (IPC) https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Kenya_Acute_Food_Insecurity_Acute_Malnutrition_2021FebMay_ASAL.pdf</p> <p>National Disaster Management Authority https://www.ndma.go.ke/index.php/resource-center</p> <p>USAID, Famine Early Warning Systems Network (FEWSNET), Livelihoods zoning “plus” activity in Kenya 2011 https://fews.net/sites/default/files/documents/reports/KE_livelihood_profiles.pdf</p> <p>Kenya National Bureau of Statistics (KNBS, 2019) https://www.knbs.or.ke/2019-kenya-population-and-housing-census-reports/</p> <p>International Livestock Research Institute (ILRI) ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report</p> <p>European journal of education studies 2019 https://oapub.org/edu/index.php/ejes</p> <p>Ministry of Agriculture, Kilimo news https://kilimonews.co.ke/general-news/livestock-population-in-kenya/</p>	<p>National Pastoralists population by age, gender, income, education.</p> <p>Most of the literature and datasets available do not uniquely identify agro-pastoralists as a key segment across all themes hence proper classification is required during data collection and analysis.</p>

The literature research and data analysis surfaces the following gaps cont.'

Theme	Reviewed literature	Identified Gaps
Digital/ Non digital financial access	<p>IGAD, Stock-Taking and Gap Analysis Study of Financial Products for Pastoral Areas and Linking Pastoralists to Financial Service Providers, 2016 https://icpald.org/wp-content/uploads/2021/02/Stock-Taking-and-Gap-Analysis-Study-of-Financial-Products-for-Pastoral-Areas.pdf</p> <p>International Livestock Research Institute (ILRI) ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report</p> <p>WFP, Humanitarian Aid and Civil Protection, & GoK. (2013). Market Dynamics and Financial Services in Kenya's Arid Lands. https://documents.wfp.org/stellent/groups/public/documents/ena/wfp257939.pdf</p> <p>A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries: Volume 1: Main report—Operational and technical feasibility assessment. ILRI Research Report 75. Nairobi, Kenya: ILRI. https://cgspace.cgiar.org/handle/10568/114255</p> <p>Bostedt et al., Saving and borrowing behaviour among agro-pastoralists in West Pokot County, Kenya, 2021 https://onlinelibrary.wiley.com/doi/full/10.1002/jid.3560</p> <p>Financial Protection Forum https://www.financialprotectionforum.org/publications</p>	National pastoralists population with mobile money accounts, bank accounts, those who save/borrow and how much, channels used to save and borrow by gender, age, income, education
Digital/ Non digital Information access	<p>Kenya National Bureau of Statistics (KNBS, 2019) https://www.knbs.or.ke/2019-kenya-population-and-housing-census-reports/</p> <p>International Livestock Research Institute (ILRI) ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report</p> <p>Index Based Livestock Insurance https://ibli.ilri.org/</p> <p>African Research and Economic Development Consultants (AFREDEC), 2022 https://www.afredec.com/#:~:text=AFREDEC%20was%20established%20with%20an,and%20education)%20sectors%20in%20Africa.</p> <p>Wanyoike, F., Njiru, N. Kutu, A., Chuchu, S., Wamwere-Njoroge, G. and Mtimet, N. (2018). Analysis of livestock and fodder value chains in arid and semi-arid lands in Kenya. Nairobi, Kenya: ILRI https://cgspace.cgiar.org/bitstream/handle/10568/91179/avcd_livestock.pdf?isAllowed=y&sequence=6</p> <p>ILRI, CGIAR,CTA, Exploring pastoralists' demand for information and channels for its effective delivery, 2018 https://cgspace.cgiar.org/bitstream/handle/10568/119530/FeasibilityStudy_ibli.pdf?sequence=1&isAllowed=y</p>	National pastoralists population that access information by type and channels used, preferred information and effective channels, challenges experienced in accessing the information; by age, gender, education and income

The literature research and data analysis surfaces the following gaps cont.'

Theme	Reviewed literature	Identified Gaps
Opportunities to increase producer income through digital access	<p>Parlaca et al., Can cellphones improve nutrition among pastoral communities? Panel data evidence from Northern Kenya, 2020. https://onlinelibrary.wiley.com/doi/full/10.1111/agec.12566</p> <p>UNCDF:Regulating the Use of Digital Financial Service Agents in Developing Countries,2015: Regulating the Use of DFS Agents in Developing Countries - UN Capital Development Fund (UNCDF) (icentric-dev.com)</p> <p>Bilal Butt, Herding by Mobile Phone: Technology, Social Networks and the “Transformation” of Pastoral Herding in East Africa, 2015 https://www.researchgate.net/publication/269290043_Herding_by_Mobile_Phone_Technology_Social_Networks_and_the_Transformation_of_Pastoral_Herding_in_East_Africa</p>	National pastoralists population with access to phones/ smart phones, with mobile money/ bank, levels accounts, digital literacy by age, gender, education and income
Constraints to farmers increased productivity	<p>Ministry of Agriculture, Fisheries, and cooperatives; Range management and pastoralism strategy, 2021 https://www.iyrp.info/sites/iyrp.org/files/Kenya%20Range%20Management%20%2B%20Pastoralism%20Strategy%202021-31.pdf</p> <p>USAID, Feed the Future Accelerated Value Chain Development (AVCD) Program: Livestock Value Chain Annual Survey Report,2020 https://cgspace.cgiar.org/bitstream/handle/10568/112915/LVC2020AnnualSurveyReport.pdf?sequence=5</p> <p>Malaria Atlas Project, 2019 https://malariaatlas.org/</p>	National pastoralists constraints to increased productivity by age, gender, education and income
Threats and coping strategies against shocks experienced by producers	<p>Muricho, D.N et al., Building pastoralists’ resilience to shocks for sustainable disaster risk mitigation: Lessons from West Pokot County, Kenya, 2018. https://profiles.uonbi.ac.ke/sites/default/files/kosura/files/building_pastoralists.pdf</p> <p>International Livestock Research Institute (ILRI) ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report</p> <p>Francis Opiyo, Oliver Wasonga, Moses Nyangito, Janpeter Schilling and Richard Munang, Drought Adaptation and Coping Strategies Among the Turkana Pastoralists of Northern Kenya, 2015 https://link.springer.com/article/10.1007/s13753-015-0063-4</p> <p>Building resilience and disaster risk reduction among pastoralist communities, Lessons from West Pokot county, 2019 https://www.siani.se/wp-content/uploads/2019/03/190304a-Bessonova-SIANI-briefs-1902e2.pdf</p> <p>Raphael P. Magal et al., Risk Assessment of Traditional Strategies, Values and Practices of Pastoralists to Climate Change and Variability: A Case of West Pokot County, Kenya, 2017. http://docplayer.net/138872418-Risk-assessment-of-traditional-strategies-values-and-practices-of-pastoralists-to-climate-change-and-variability-a-case-of-west-pokot-county-kenya.html</p>	Regional specific shocks to pastoral livelihoods and coping strategies by age, gender, education and income

REFERENCE



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Dalberg Research

We reviewed the following Literature to inform our analysis on Pastoralists and Agro pastoralists

Ministry of East African Community (EAC), The ASALS and Regional Development <https://www.asals.go.ke/>

<https://www.researchgate.net/> https://www.researchgate.net/figure/Agro-climatic-characteristics-of-ASALs-in-Kenya_tbl1_316739060

Feed the Future, The accelerated value chain development program national conference report 2018

http://oar.icrisat.org/11206/1/AVCD_NationalConference_2018.pdf

Integrated Food Security Phase Classification (IPC)

https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Kenya_Acute_Food_Insecurity_Acute_Malnutrition_2021FebMay_ASAL.pdf

National Disaster Management Authority <https://www.ndma.go.ke/index.php/resource-center>

USAID, Famine Early Warning Systems Network (FEWSNET), Livelihoods zoning “plus” activity in Kenya 2011

https://fewsn.net/sites/default/files/documents/reports/KE_livelihood_profiles.pdf

Kenya National Bureau of Statistics (KNBS, 2019) <https://www.knbs.or.ke/2019-kenya-population-and-housing-census-reports/>

International Livestock Research Institute (ILRI) ILRI- De-Risking, Inclusion, And Value Enhancement of Pastoral Economies in the Horn of Africa (DRIVE) Report

European journal of education studies 2019 <https://oapub.org/edu/index.php/ejes>

IGAD, Stock-Taking and Gap Analysis Study of Financial Products for Pastoral Areas and Linking Pastoralists to Financial Service Providers, 2016

<https://icpald.org/wp-content/uploads/2021/02/Stock-Taking-and-Gap-Analysis-Study-of-Financial-Products-for-Pastoral-Areas.pdf>

A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries: Volume 1: Main report—Operational and technical feasibility assessment. ILRI Research Report 75. Nairobi, Kenya: ILRI. <https://cgspace.cgiar.org/handle/10568/114255>



We reviewed the following Literature to inform our analysis on Pastoralists and Agro pastoralists

WFP, Humanitarian Aid and Civil Protection, & GoK. (2013). Market Dynamics and Financial Services in Kenya's Arid Lands.

<https://documents.wfp.org/stellent/groups/public/documents/ena/wfp257939.pdf>

Bostedt et al., Saving and borrowing behaviour among agro-pastoralists in West Pokot County, Kenya, 2021

<https://onlinelibrary.wiley.com/doi/full/10.1002/jid.3560>

African Research and Economic Development Consultants (AFREDEC), 2022

[https://www.afredec.com/#:~:text=AFREDEC%20was%20established%20with%20an,and%20education\)%20sectors%20in%20Africa.](https://www.afredec.com/#:~:text=AFREDEC%20was%20established%20with%20an,and%20education)%20sectors%20in%20Africa.)

Wanyoike, F., Njiru, N. Kutu, A., Chuchu, S., Wamwere-Njoroge, G. and Mtimet, N. (2018). Analysis of livestock and fodder value chains in arid and semi-arid lands in Kenya. Nairobi, Kenya: ILRI https://cgspace.cgiar.org/bitstream/handle/10568/91179/avcd_livestock.pdf?isAllowed=y&sequence=6

ILRI, CGIAR,CTA, Exploring pastoralists' demand for information and channels for its effective delivery, 2018

https://cgspace.cgiar.org/bitstream/handle/10568/119530/FeasibilityStudy_ibli.pdf?sequence=1&isAllowed=y

Parlaca et al., Can cellphones improve nutrition among pastoral communities? Panel data evidence from Northern Kenya, 2020.

<https://onlinelibrary.wiley.com/doi/full/10.1111/agec.12566>

Bilal Butt, Herding by Mobile Phone: Technology, Social Networks and the "Transformation" of Pastoral Herding in East Africa, 2015

https://www.researchgate.net/publication/269290043_Herding_by_Mobile_Phone_Technology_Social_Networks_and_the_Transformation_of_Pastoral_Herding_in_East_Africa

Ministry of Agriculture, Fisheries, and cooperatives; Range management and pastoralism strategy, 2021

<https://www.iyrp.info/sites/iyrp.org/files/Kenya%20Range%20Management%20%2B%20Pastoralism%20Strategy%202021-31.pdf>

USAID, Feed the Future Accelerated Value Chain Development (AVCD) Program: Livestock Value Chain Annual Survey Report, 2020

<https://cgspace.cgiar.org/bitstream/handle/10568/112915/LVC2020AnnualSurveyReport.pdf?sequence=5>

Malaria Atlas Project, 2019 <https://malariaatlas.org/>



We reviewed the following Literature to inform our analysis on Pastoralists and Agro pastoralists

Muricho, D.N et al., Building pastoralists' resilience to shocks for sustainable disaster risk mitigation: Lessons from West Pokot County, Kenya, 2018. https://profiles.uonbi.ac.ke/sites/default/files/kosura/files/building_pastoralists.pdf

Francis Opiyo, Oliver Wasonga, Moses Nyangito, Janpeter Schilling and Richard Munang, Drought Adaptation and Coping Strategies Among the Turkana Pastoralists of Northern Kenya, 2015 <https://link.springer.com/article/10.1007/s13753-015-0063-4>

Building resilience and disaster risk reduction among pastoralist communities, Lessons from West Pokot county, 2019 <https://www.siani.se/wp-content/uploads/2019/03/190304a-Bessonova-SIANI-briefs-1902e2.pdf>

Raphael P. Magal et al., Risk Assessment of Traditional Strategies, Values and Practices of Pastoralists to Climate Change and Variability: A Case of West Pokot County, Kenya, 2017. <http://docplayer.net/138872418-Risk-assessment-of-traditional-strategies-values-and-practices-of-pastoralists-to-climate-change-and-variability-a-case-of-west-pokot-county-kenya.html>

Kenya ASAL Policy, National policy for the sustainable development of northern Kenya and other arid lands Sessional paper No. 8 of 2012 <https://www.adaconsortium.org/images/publications/Sessional-Paper-on-National-policy-for-development-of-ASALs.pdf>

ILRI, A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries: Volume2, 2021 <https://cgspace.cgiar.org/handle/10568/114255>

UKaid & CGIAR, 2021. A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries: Volume 1: Main report—Operational and technical feasibility assessment. ILRI Research Report 75. Nairobi, Kenya: ILRI. <https://cgspace.cgiar.org/handle/10568/114255>

ANNEX 2



AGRIFIN

Dalberg Research

Key institutions involved in livestock and pastoral development

Institution	
Ministries	State Department of Livestock, Ministry of Livestock, Agriculture and Fisheries (operates KLIP)
	National Drought Management Authority, Ministry of Devolution & ASALs (leading the HSNP)
Livestock sector associations	Kenya Livestock Marketing Council
	Kenya Livestock Producers Association
	Kenya Feed Manufacturers Association
Financial service providers	Banks in pastoralist areas: Equity Bank (bank for HSNP); Kenya Commercial Bank; Co-Operative Bank; First Community Bank
	Mobile cash: M-Pesa (Safaricom); Airtel Money (Airtel); Sendwave
	Insurance: APA Insurance (underwriter KLIP, underwriter IBLI); Takaful Insurance of Africa (formerly underwriting KLIP, IBLI)
	Other: Agent for Inclusive Insurance Development
NGOs	Turkana Pastoralist Development Organization
	Kenya Markets Trust
Development partners	WBG, UK FCDO, FAO, WFP, USAID, IGAD



Source; UKaid & CGIAR, 2021. A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries: Volume 1: Main report—Operational and technical feasibility assessment. ILRI Research Report 75. Nairobi, Kenya: ILRI.

Key institutions involved in livestock and pastoral development

Organization	Mandate	Value chains
International Livestock Research Institute (ILRI)	The International Livestock Research Institute (ILRI) works for better lives through livestock in developing countries. ILRI provides digital solutions to improve the lives of pastoralists	<ul style="list-style-type: none"> • Livestock production and marketing • Animal health and welfare • Nutrition
National Rangeland Trust (NRT)	The Northern Rangelands Trust (NRT) is a membership organisation owned and led by the 43 community conservancies it serves in northern and coastal Kenya. NRT was established as a shared resource to help build and develop community conservancies, which are best positioned to enhance people's lives, build peace and conserve the natural environment. NRT member community conservancies work to conserve wildlife and sustainably manage the grassland, forest, river and marine ecosystems upon which livelihoods depend.	<ul style="list-style-type: none"> • Pastoralists and agro-pastoralists
Financial Sector Deepening (FSD)	Financial Sector Deepening Kenya (FSD Kenya) is an independent trust dedicated to the achievement of a financial system that delivers value for a green and inclusive digital economy while improving financial health and capability for women and micro and small enterprises (MSEs).	<ul style="list-style-type: none"> • Pastoralists and agro-pastoralists
International Fund for Agricultural Development (IFAD)	IFAD invests in rural people, empowering them to increase their food security, improve the nutrition of their families and increase their incomes. Helps them build resilience, expand their businesses and take charge of their own development.	<ul style="list-style-type: none"> • Pastoralists and agro-pastoralists • Livestock production and marketing • Value addition • Agroforestry
Famine Early Warning Systems Network (FEWSNET)	FEWS NET, the Famine Early Warning Systems Network, is a leading provider of early warning and analysis on acute food insecurity around the world. FEWS NET provides unbiased, evidence-based analysis to governments and relief agencies who plan for and respond to humanitarian crises. FEWS NET analyses support resilience and development programming as well. FEWS NET analysts and specialists work with scientists, government ministries, international agencies, and NGOs to track and publicly report on conditions in the world's most food-insecure countries.	<ul style="list-style-type: none"> • Pastoralists and agro-pastoralists
Supporting Pastoralists and Agriculture in Recurrent and Protracted Crises (SPARC)	Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises (SPARC) aims to generate evidence and address knowledge gaps to build the resilience of millions of pastoralists, agro-pastoralists and farmers in these communities in sub-Saharan Africa and the Middle East.	<ul style="list-style-type: none"> • Pastoralists and agro-pastoralists



Source; The list of organizations has been obtained through searching in the internet and looking at their websites

Key institutions involved in livestock and pastoral development

Organization/Platform	Mandate	Value chains
Livestock Market Information System (LMIS)	The LMIS is a platform that collects, processes, analyzes, and disseminates information on the livestock sector, covering a wide range of value chains, including production, marketing, and trade. It provides real-time market information on livestock commodities, promoting informed decision-making, market efficiency, and sustainable livestock development.	<ul style="list-style-type: none"> • Livestock – cattle, sheep, goats and camels
Digital Green	Digital Green is a non-profit organizations that works with pastoralists and agro-pastoralists in Kenya to improve their livelihoods by using digital technologies to create and share locally-led videos on best practices in livestock management and other aspects of pastoralism. This helps pastoralists improve their skills and increase their productivity in the livestock value chain.	Pastoralists and agro-pastoralists <ul style="list-style-type: none"> • Crops and Livestock
UN Women	UN Women works to empower women and girls in pastoralist communities in Kenya by addressing challenges such as limited access to education, healthcare, and economic opportunities. Through partnerships and programs, UN Women aims to promote women's rights, increase participation in decision-making, and address gender-based violence. The organization also enhances access to resources and support systems to help women and girls achieve their potential.	<ul style="list-style-type: none"> • Pastoralists and agro-pastoralists
Food and Agriculture Organization of the United Nations (FAO)	FAO works to improve the livelihoods and food security of pastoralist communities in Kenya. The organization is involved in several value chains, including livestock production and marketing, and supports pastoralist communities through initiatives aimed at improving animal health, increasing productivity, and reducing the risks associated with pastoralism. FAO also works to promote sustainable natural resource management, improve access to markets and financial services, and enhance the resilience of pastoralist communities to climate change and other shocks.	<ul style="list-style-type: none"> • Pastoralists and agro-pastoralists
World Bank	<p>The World Bank has sponsored the De-risking, Inclusion and Value Enhancement (DRIVE) project of pastoral economies which aims to strengthen support for pastoralists in the Horn of Africa (HOA) so that they have access to rapid cash when there is a drought, either through their savings or insurance payouts, allowing them to keep their core breeding stock alive.</p> <p>The project complements existing interventions to strengthen pastoral production systems and access to groundwater, with access to financial services, mobilization of private investment in the livestock value chains, and trade facilitation.</p>	<ul style="list-style-type: none"> • Livestock – Cattle, goats, sheep camels and donkeys
Kenya Agricultural and Livestock Research Organization (KALRO)	KALRO is a government-run research organization in Kenya that works to develop and promote sustainable livestock production systems, as well as to improve the livelihoods of pastoralist communities in Kenya. This includes research on livestock breeds and feeds, animal health, and marketing. KALRO also provides training and extension services to pastoralist communities to help them improve their livestock production and management practices.	<ul style="list-style-type: none"> • Pastoralists and agro-pastoralists



Source; The list of organizations has been obtained through searching in the internet and looking at their websites